ORDER NO. ARD-8007074C

Service Manual

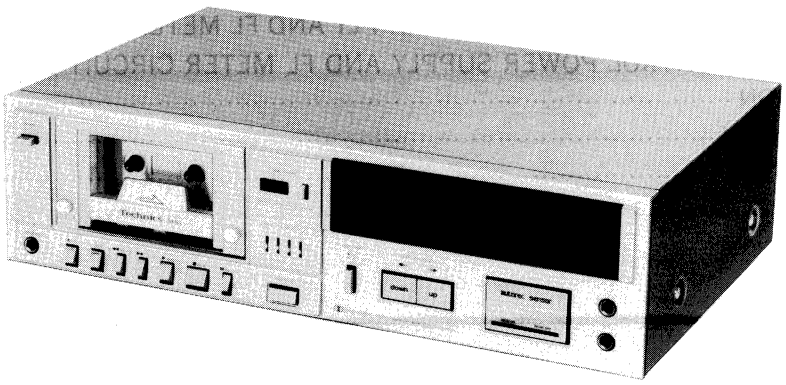
Cassette Deck

RS-M51

(Silver Face)

Metal Tape Compatible Stereo Cassette Deck with
Autorec Sensor, Auto-Tape Selector,
Peak-Hold 2-Color FL Meters and Soft-Touch Controls

DOLBY SYSTEM



This is the Service Manual for the following areas.
- [N] ····· For Asia, Latin America, Middle East and Africa areas.
- [A] ····· For Australia.
- [F] ····· For Asian PX.
- [J] ····· For European PX.

RS-M24 MECHANISM SERIES

Specifications

Track system:	4-track 2-channel stereo recording and playback
Tape speed:	4.8 cm/s (1-7/8 ips.)
Wow and flutter:	0.045% (WRMS), ±0.13% (DIN)
Frequency response:	Metal tape; 20 – 18,000 Hz 30 – 17,000 Hz ±3 dB
	CrO_2/Fe-Cr tape; 20 – 18,000 Hz 30 – 16,000 Hz ±3 dB
	Normal tape; 20 – 17,000 Hz 30 – 15,000 Hz ±3 dB
Signal-to-noise ratio:	Dolby* NR in; 67 dB (above 5 kHz) Dolby NR out; 57 dB (signal level = max. recording level, Fe-Cr/CrO_2 type tape)
Fast forward and rewind time:	Approx. 90 seconds with C-60 cassette tape
Inputs:	MIC; sensitivity 0.25 mV, input impedance 7.6 kΩ applicable microphone impedance 400 Ω – 10 kΩ LINE; sensitivity 60 mV, input impedance 98 kΩ
Outputs:	LINE; output level 700 mV, output impedance 2.5 kΩ or less load impedance 22 kΩ over HEADPHONE; output level 125 mV, load impedance 8/125 Ω
Bias frequency:	75 kHz
Motor:	Electrical control DC governor motor
Heads:	2-head system; 1-MX head for record/playback 1-sendust/ferrite double-gap head for erasure
Power requirements:	AC; 110/125/220/240 V, 50-60 Hz (240V: only for Australia)
Power consumption:	17 W
Dimensions:	43.0 cm(W) × 11.9 cm(H) × 27.0 cm(D) 〔16-7/8"(W) × 4-3/4"(H) × 10-5/8"(D)〕
Weight:	6 kg (13 lbs 3 oz)

Specifications are subject to change without notice.

* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

Technics

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Panasonic Tokyo
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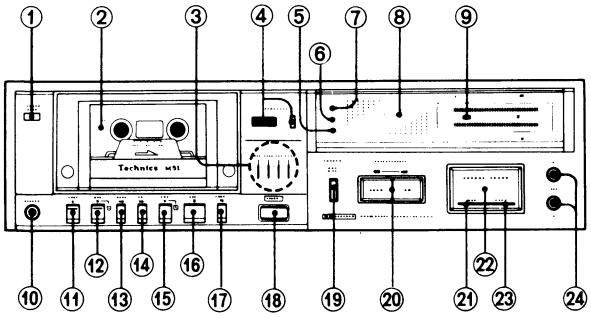
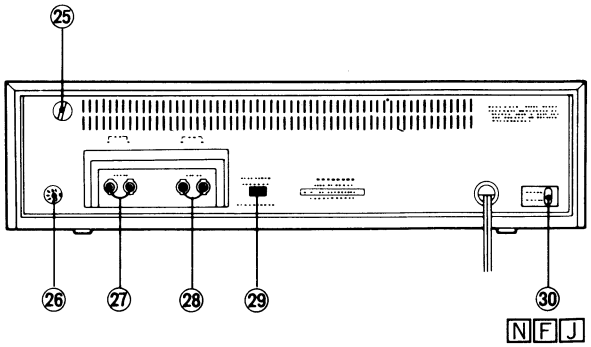
17-15, 6-chome, Shinbashi, Minato-ku, Tokyo 105 Japan

CONTENTS

LOCATION OF CONTROLS AND COMPONENTS





NFJ

① Power switch (power)
② Cassette holder
③ Tape selector indicators (normal/CrO2/Metal/Fe-Cr)
④ Tape counter and Reset button (tape counter)
⑤ Microphone indicator (mic)
⑥ Dolby noise reduction indicator (Dolby NR)
⑦ Recording indicator (rec)
⑧ Recording level setting indicator (level sensor read-out)
⑨ FL (fluorescent level) meters
⑩ Headphones jack (phones)
⑪ Eject button (▲ eject)
⑫ Record button (○ rec)
⑬ Rewind/Review button (◀◀ rew/rev)
⑭ Fast forward/Cue button (▶▶ ff/cue)
⑮ Play button (▶ play)
⑯ Stop button (■ stop)
⑰ Pause button (II pause)
⑱ Record-muting button (rec mute)
⑲ Dolby noise-reduction switch (Dolby NR)
⑳ Recording level variation button [level fine adjust (down/up)]
㉑ Recording level detection indicator (search)
㉒ Recording level automatic setting button [autorec sensor (autorec level sensor)]
㉓ Recording level setting complete indicator (level set)
㉔ Microphone jacks (L mic R)
㉕ Output level control (OUTPUT LEVEL)
㉖ Remote-control connector (REMOTE CONTROL)
㉗ Line output jacks (LINE OUT) (R · L)
㉘ Line input jacks (LINE IN) (R · L)
㉙ Tape selector [tape select auto (Metal/CrO2/normal)/ manual (Fe-Cr/Metal)]
㉚ Voltage selector (VOLTAGE SELECTOR)

(FJ ····· For PX.
N ····· For Asia, Latin America, Middle East and Africa areas.)

DISASSEMBLY INSTRUCTIONS

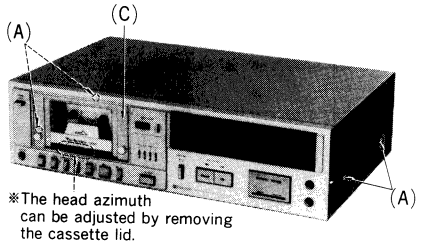


Fig. 1

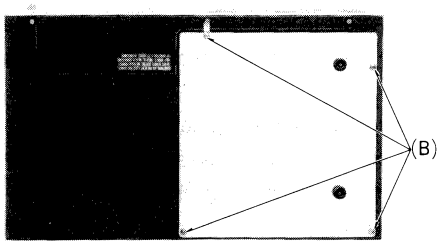


Fig. 2

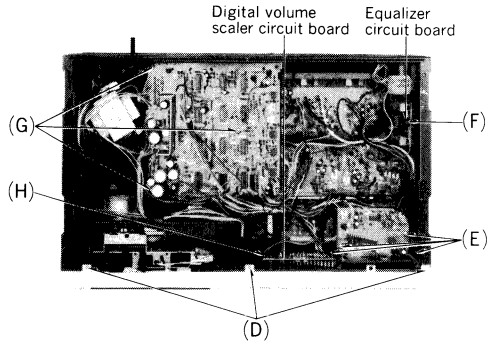


Fig. 3

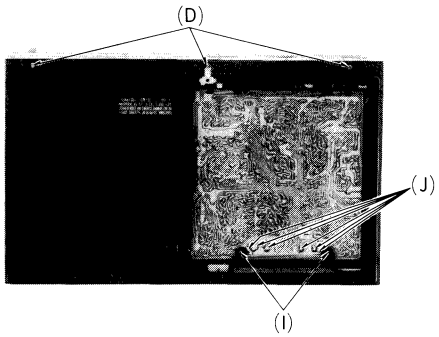


Fig. 4

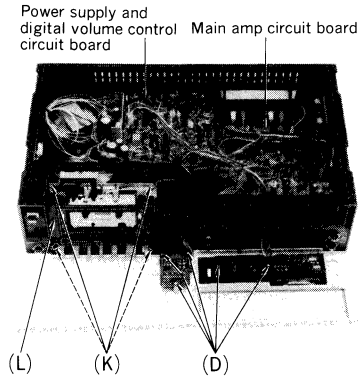


Fig. 5

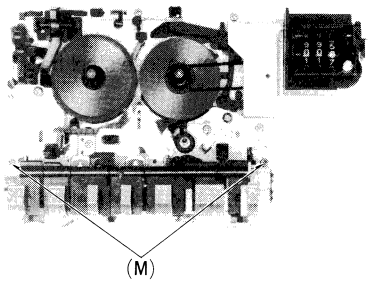


Fig. 6

Ref. No.	Procedure	To remove —— .	Remove —— .	Shown in fig. —— .
1	1	Case cover	• 4 screws ····· (A)	1
2	2	Bottom cover	• 4 red screws ····· (B)	2
3	1→3	Front panel	• Cassette lid ····· (C) • 11 screws ····· (D)	1 3, 4, 5
4	1→4	FL meter and FL meter circuit board	• 4 screws ····· (E)	3
5	1→5	Equalizer circuit board	• 1 screw ····· (F)	3
6	1→6	Power supply and digital volume control circuit board	• 3 red screws ····· (G)	3
7	1→4→7	Digital volume scaler circuit board	• 1 screw ····· (H)	3
8	1→2→5→8	Main amp circuit board	• 2 red screws ····· (I) • 6 solder points ····· (J)	4
9	1→3→9	Mechanism unit	• 4 screws ····· (K)	5
10	1→3→9→10	Operation button assembly	• Cassette holder ····· (L) • 2 screws ····· (M)	5 6

DISASSEMBLY NOTES (MECHANISM UNIT)

• Precautions for removal of the motor

When removing the motor, follow the procedure given below.

1. Remove screw (A), and then detach flywheel retainer (M44) by pulling it in the direction of the arrow as in fig. 1.
2. After removing screws (B), detach takeup belt (M78) and capstan belt (M76), and then sub chassis assembly (M72) can be removed. (fig. 1, 2)
3. When screws (C) is removed after detaching fast forward belt (M77), motor assembly (M71) can be removed. (fig. 2)

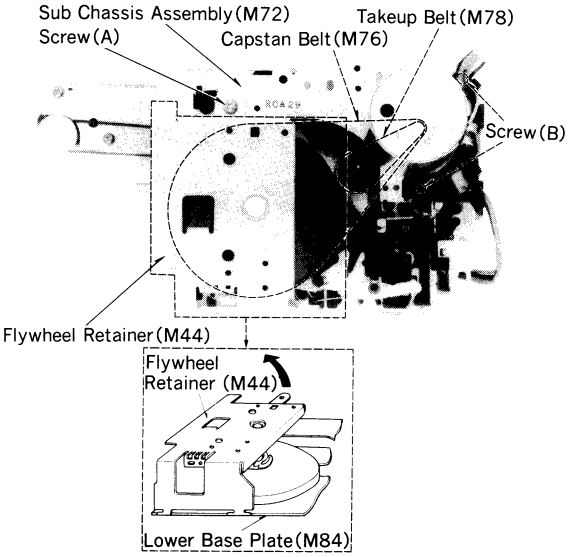


Fig. 1

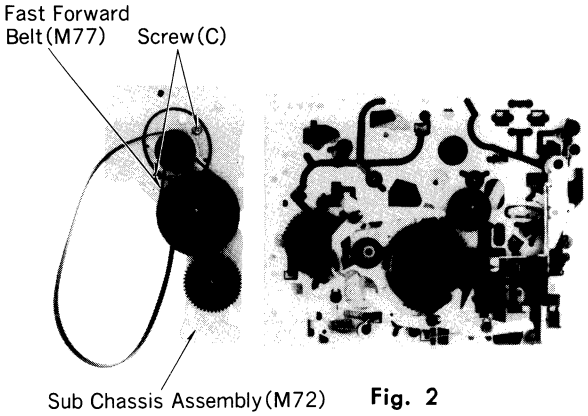


Fig. 2

• Head base plate (M57) and upper base plate (M83) removing procedure

1. With screw (D) removed, head base plate pressure spring (M66) can be detached.
   In this case, take care not to lose steel ball (M65). (fig. 3)
2. With head release spring (M68) removed, head base plate (M57) can be detached. (fig. 3, 4)
   In this case, take care not to lose steel ball (M65) and roller (M64) (fig. 4)
3. After removing pressure roller release spring (M25), remove pressure roller assembly (M40). (fig. 4)
4. Remove screw (E), and then upper base plate (M83) can be detached. (fig. 4)

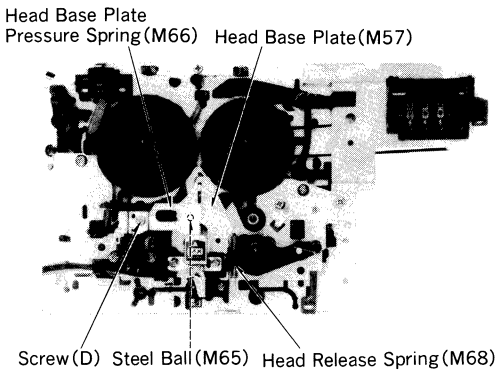


Fig. 3

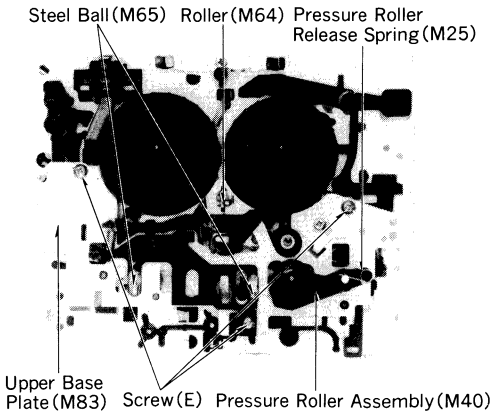


Fig. 4

• Mechanism section

1. For repair, measurement or adjustment with the mechanism removed from the unit be sure to ground the lower base plate of the mechanism.
2. For grounding, connect a extension cord to the mechanism's lower base plate and the lug terminal from earth plate-A (fig. 5).
3. Without grounding, the amplifier does not operate properly.

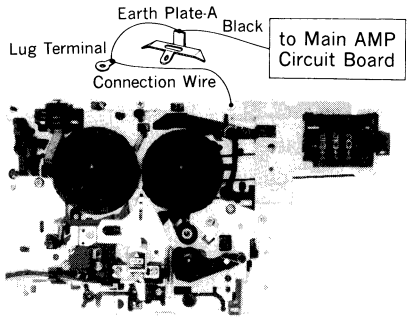


Fig. 5

ASSEMBLY INSTRUCTIONS

• Belt mounting

Check that each belt is free of damage or grease on the surface, after that, set the belt as illustrated, and mount it on the lower base plate (M84) after that, set the takeup belt (M78) on the fast forward connection pulley assembly (M82) (fig. 1).

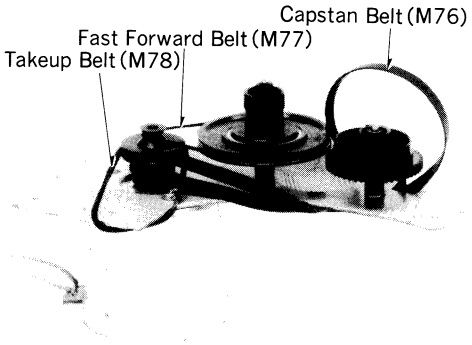


Fig. 1

• Positioning the takeup reel table assembly

When installing the takeup reel table assembly, be sure to mount the auto-stop friction hub (shown in fig. 3), as illustrated in fig. 2.
If the takeup reel table is positioned incorrectly at any place other than that shown in fig. 2, the auto-stop mechanism remains operative at all times.

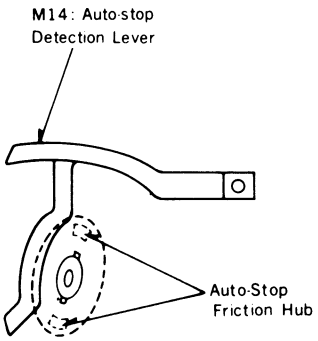


Fig. 2

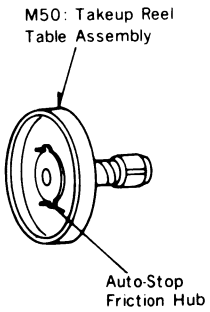


Fig. 3

• Mounting the operation button assembly

Before mounting the operation button assembly on the mechanism body, be sure to lift the main control lever in the direction of the arrow using a screwdriver, as shown in fig. 4, until it locks in place.
If it is not mounted in this manner, the hub of the playback button assembly during playback catches on the main control lever, making it impossible to release playback mode.

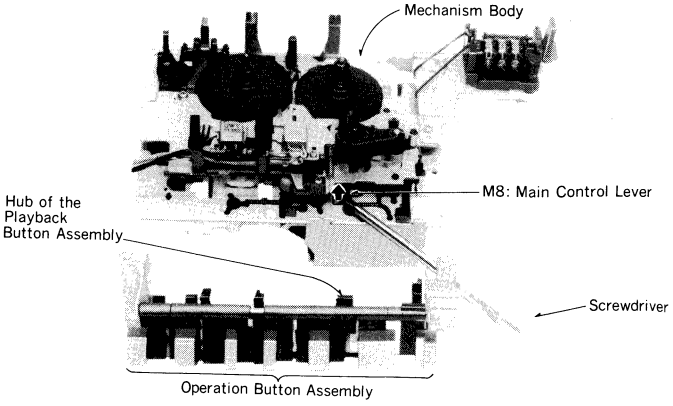


Fig. 4

• How to install the flywheel retainer

1. Insert the thrust retainer into the hole (A) of the flywheel retainer as shown in fig. 5.
2. Hold the thrust retainer with the thumb as shown in fig. 6.
3. Engage the parts (B) and (C) of the flywheel retainer with the lower base plate as shown in fig. 7.
4. Shift down the flywheel retainer, supported at points (D), in the direction of the arrow as illustrated fig. 8.
5. Attach the screw (A) in the position as shown in fig. 1 on page 3.

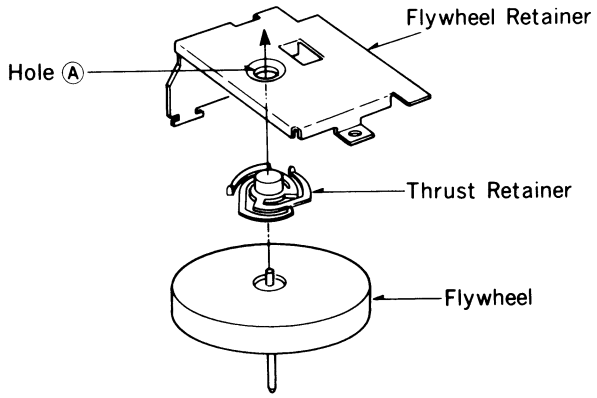


Fig. 5

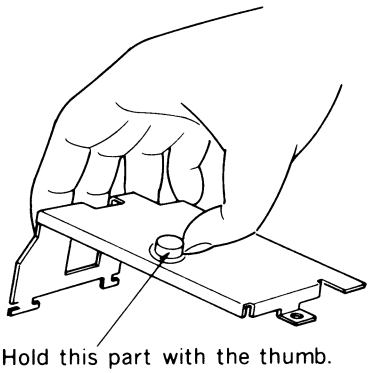


Fig. 6

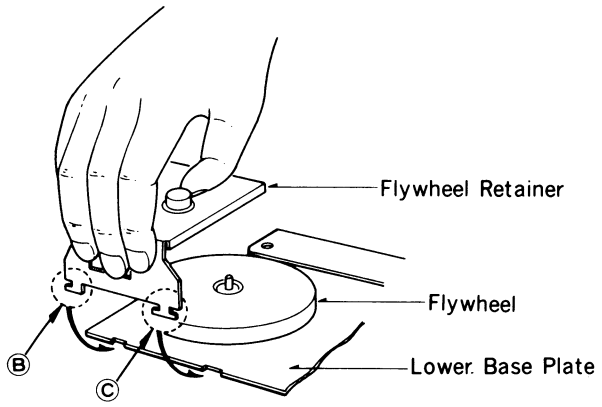


Fig. 7

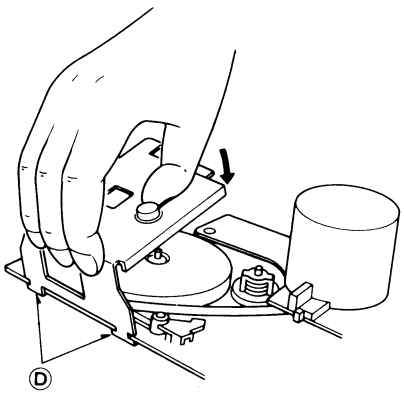


Fig. 8

OPERATING PRINCIPLE OF AUTOMATIC INPUT CHANGEOVER MECHANISM

This unit uses an automatic input changeover mechanism.
Automatic input changeover of this unit is built-in the MIC jack.
With the microphone plug inserted into the microphone jack, the mechanism automatically changes an input source from LINE IN to the MIC.

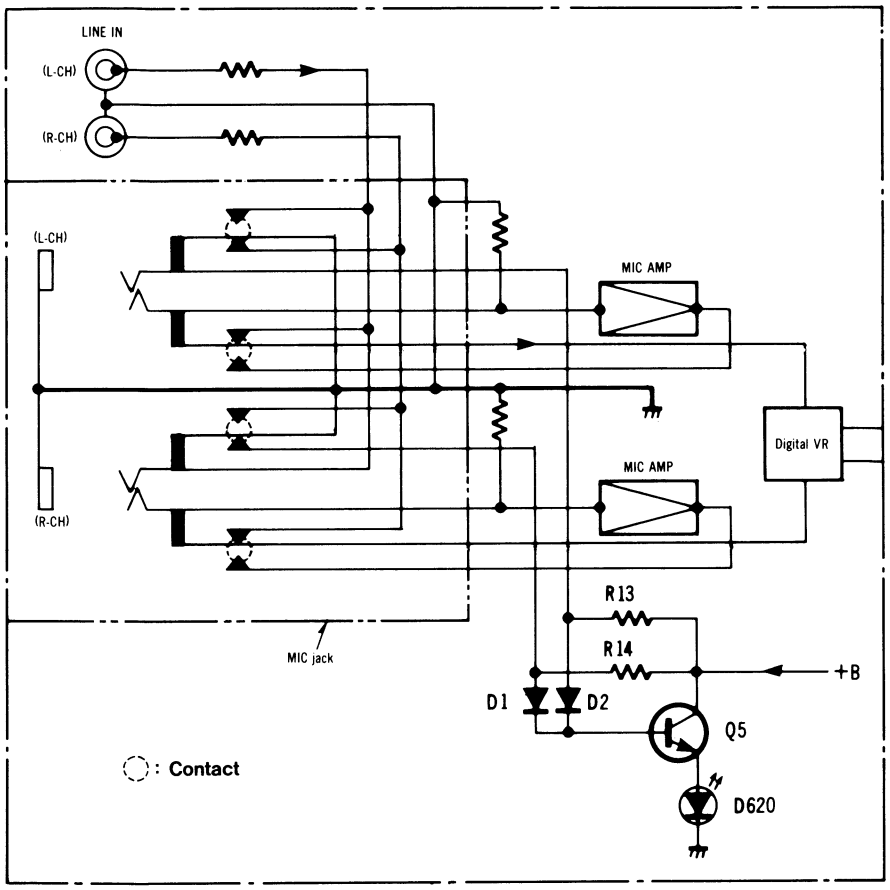


Fig. 1

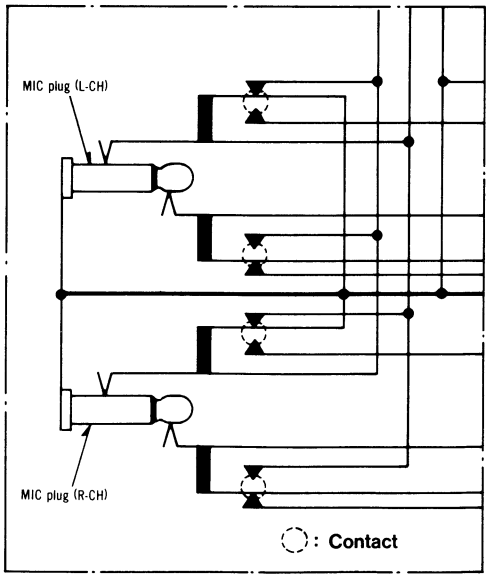


Fig. 2

The automatic input changeover mechanism is simplified as shown in fig. 1.
With the microphone unplugged, the contact is positioned as shown in fig. 1, where an input source is at the LINE IN.
Inserting the microphone plug into the jack causes an automatic contact changeover (shown in fig. 2).
The input source is changed from the LINE IN to the MIC, turning on the transistor (Q5) to cause the LED (D620) to light up, thus indicating that the input has been changed from the LINE IN to the MIC.

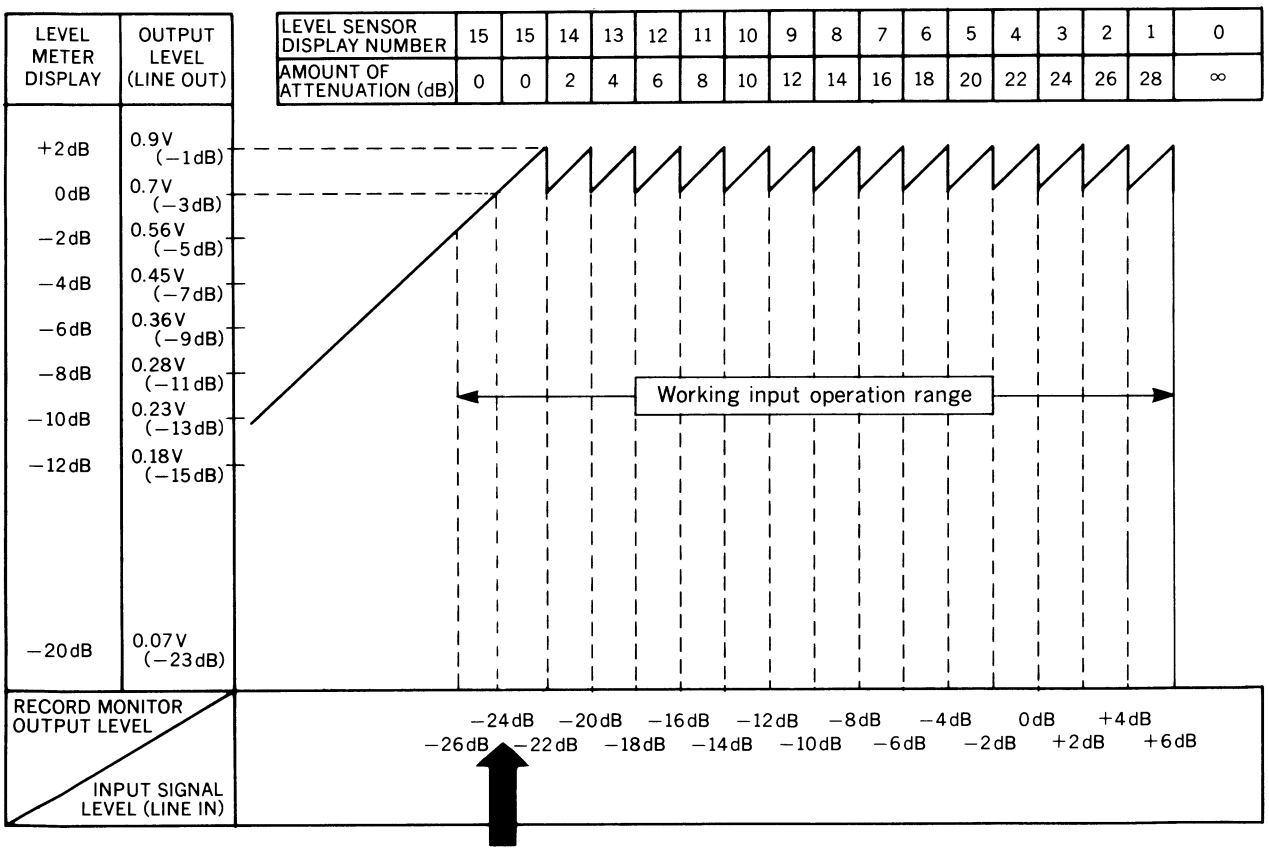
NOTE:

Even the microphone plug is inserted into the jack of a single channel alone, an input source at both channels is changed to the microphone, and the microphone display LED (D620) lights up.

TECHNICAL INFORMATION OF AUTO-REC SENSOR

The recording input control of this unit is of a digital control attenuator system based on the electronic circuitry.
An ordinary tape deck using a manual variable resistor system monitors the peak level of input signal by a level meter for correct recording level setting.
In contract, however, this unit is equipped with a function that can set the recording level automatically with a single touch of a button. Furthermore, fine adjustment is possible to any required recording level.

INPUT/OUTPUT CHARACTERISTICS OF AUTO-REC SENSOR



STANDARD RECORDING LEVEL (−24±3.5dB)

Fig. 1

Fig. 1 shows the record monitor output level at LINE OUT after operation of the Auto-Rec Sensor, with 1 kHz sine wave signal applied to LINE IN.
As shown in fig. 1, when the input level is less than the standard input level of LINE IN −24 dB, the output level decrease in proportion to the input. Also, the input applied is over +6 dB (2 V), no signal is generated on the output side. This is because the digital volume level is minimized by the Auto-Rec Sensor when the input is excessive.
Also, the Auto-Rec Sensor in the working input operation range is adjusted so that the amount of attenuation is automatically increased by 2 dB every time the input signal level increases by 2 dB, compared with the standard level as shown in fig. 1. For example, when −8 dB input signal, 16 dB higher than the standard recording level, is applied to LINE IN, it is automatically attenuated by 16 dB by the auto record level setting circuit. This causes the output level at LINE OUT to become 0.7 V (−3 dB). Displayed on the LEVEL SENSOR READ-OUT at this time is 7.
The output level after setting the recording level by the Auto-Rec Sensor, is in the range of 0.7 V − 0.9 V (Level meter display: 0 dB − +2 dB) as shown in fig. 1.

MEASUREMENT AND ADJUSTMENT METHODS

• Circuit boards and adjustment parts location

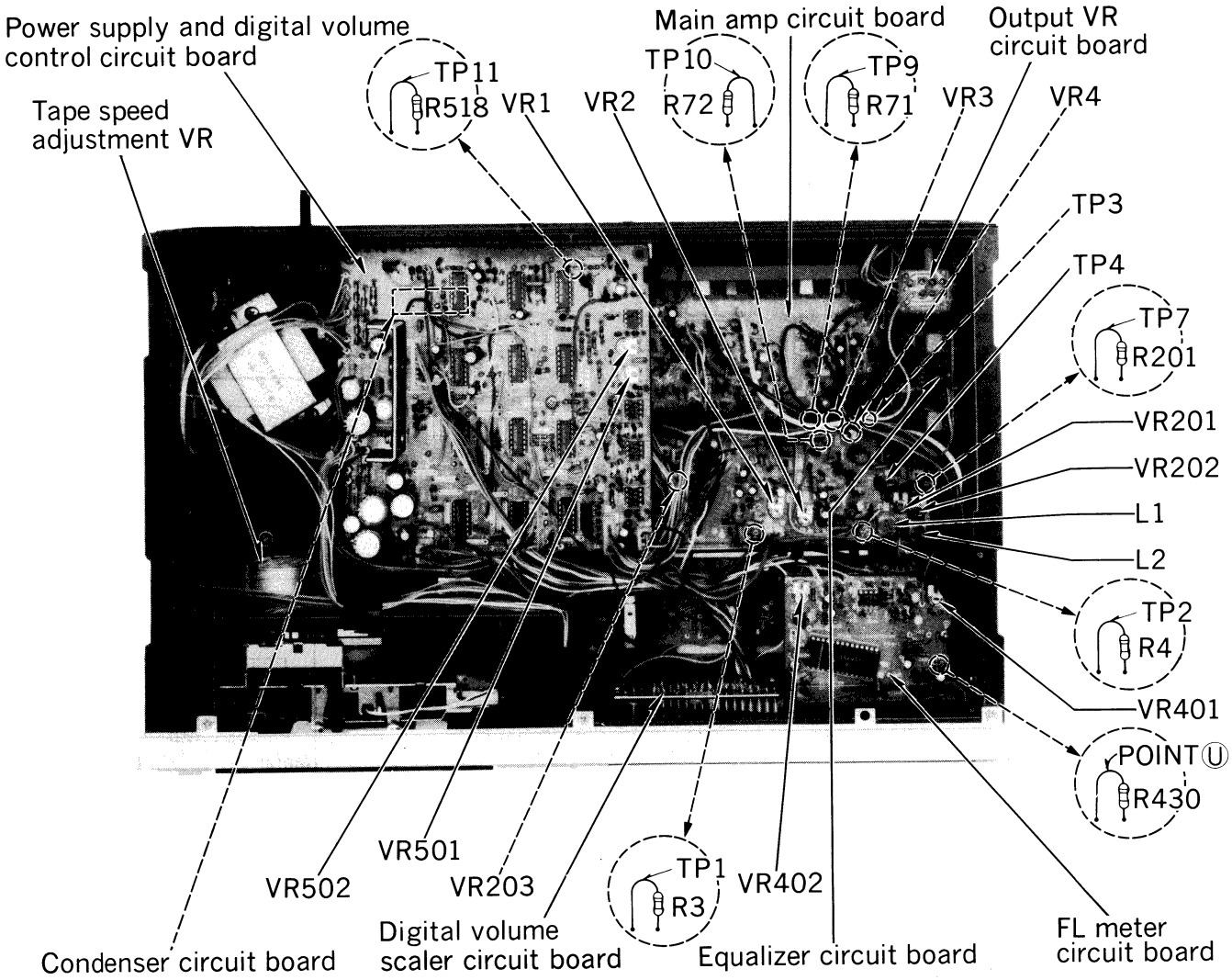


Fig. 1

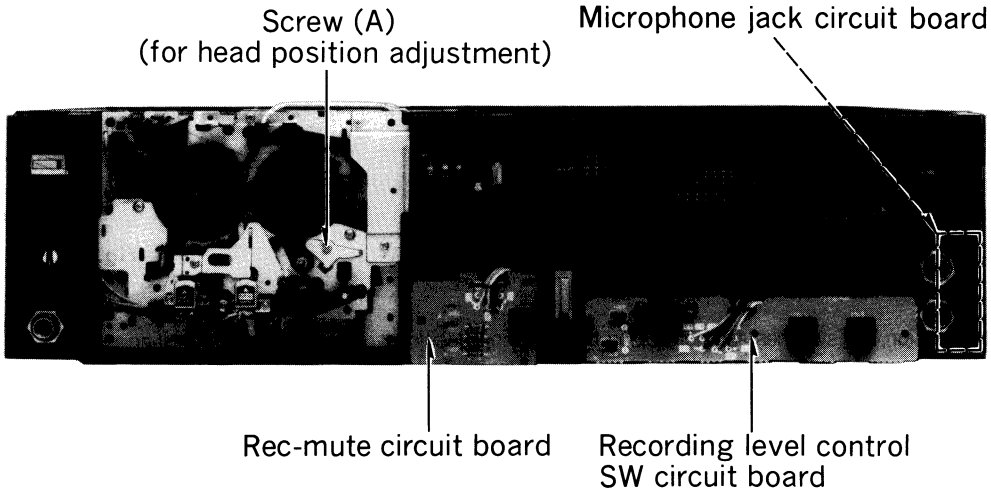


Fig. 2

NOTES 1: Tape selector

This unit employs an auto tape select mechanism. This mechanism, as shown in fig. 3, automatically selects the circuits for metal/CrO_2/normal modes by using the tape detection holes provided above the cassette tape half.
However, another type of test tape is not provided with these tape detection holes. Therefore, when it is necessary to change over the electric circuit to metal/CrO_2/normal/Fe-Cr mode for the measurement and adjustment, take the following measures according to the types of the test tapes.

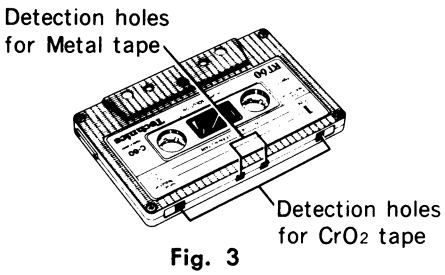


Fig. 3

◎Setting it to the metal tape mode:

- When the tape used is provided with metal tape mode detection hole, set the tape selector located at the back of the set to auto position (fig. 4).
- When the tape used is not provided with the metal tape detection hole, set the tape selector to metal-manual position (fig. 5).

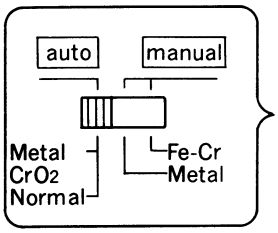


Fig. 4

◎Setting it to the normal tape mode:

- Set the tape selector located at the back of the set to auto position (fig. 4).

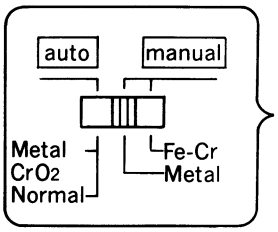


Fig. 5

◎Setting it to the Fe-Cr tape mode:

- Set the tape selector located at the back of the set to Fe-Cr-manual position (fig. 6).

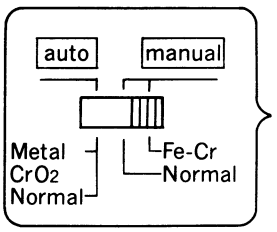


Fig. 6

◎Setting it to the CrO_2 tape mode:

- When the tape used is provided with CrO_2 tape mode detection hole, set the tape selector located at the back of the set to auto position (fig. 4).
- When the tape used is not provided with the CrO_2 tape detection hole, set the tape selector to auto position as shown in fig. 4, and pull out the 6 pin socket-Ⓖ, and short-circuit the terminal of the 6 pin post-Ⓖ as shown in fig. 7, then the circuit is set to CrO_2 mode.

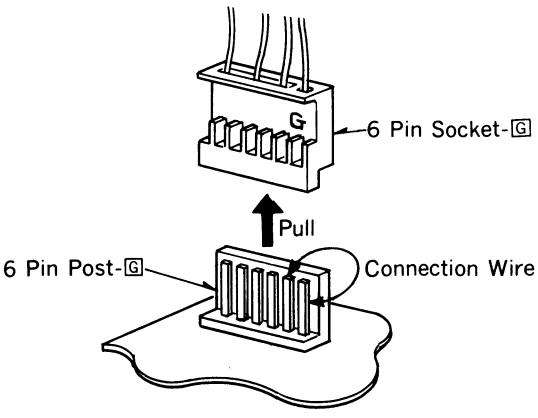
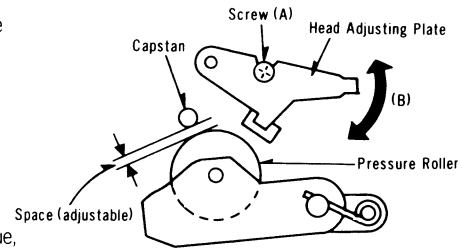
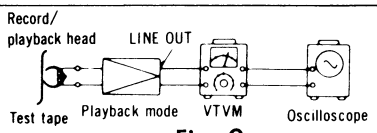
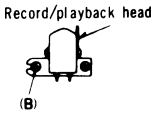
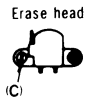
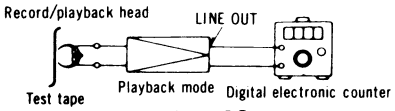
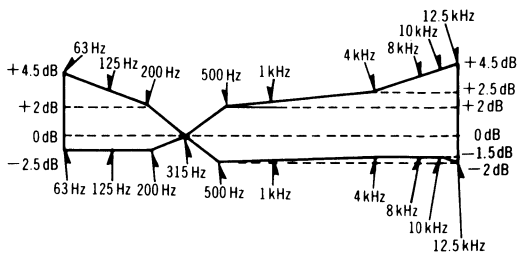


Fig. 7

NOTES 2: Keep good condition, set switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature: 20±5°C (68±9°F)
- Dolby NR switch: OUT
- Tape selector: Auto position
- Output level control: Maximum
- Level fine adjust: Maximum

ITEM	MEASUREMENT & ADJUSTMENT
Ⓐ Head position adjustment Condition: * Playback and pause mode	(The head adjusting plate is provided to adjust the tape touch of the head in cue or review mode.) 1. Press the playback button and pause button. 2. Measure the space between the pinch roller and the capstan. **Standard value: 0.5±0.3mm** 3. If the measured value is not within the standard value, untighten screw (A), and slide the head adjusting plate in the direction of arrow (B) for adjustment (Fig. 8).  **Fig. 8**
Ⓑ Head azimuth adjustment Condition: * Playback mode Equipment: * VTVM * Oscilloscope * Test tape (azimuth) ··· QZZCFM * Test tape (tape path viewer) ··· QZZCRD	**Record/playback head azimuth adjustment** 1. Test equipment connection is shown in fig. 9. 2. Playback azimuth tape (QZZCFM 8kHz). 3. Adjust record/playback head angle adjustment screw (B) in fig. 10 so that output level at LINE OUT becomes maximum. 4. Measure both channels, and adjust levels for equal output. 5. After adjustment lock head adjustment screw with lacquer.  **Fig. 9** **Erase head azimuth adjustment** 1. Test equipment connection is the same above but use the tape path viewer (QZZCRD) instead of test tape (QZZCFM). 2. Playback this tape. 3. Adjust screw (C) shown in fig. 11 so that the tape may not get curled or malformed by tape guide of the erase head. 4. After adjustment, lock head adjust screw with lacquer.  **Fig. 10**  **Fig. 11**
Ⓒ Tape speed Condition: * Playback mode Equipment: * Digital electronic counter or frequency counter * Test tape··· QZZCWAT	**Tape speed accuracy** 1. Test equipment connection is shown in fig. 12. 2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to frequency counter. 3. Measure this frequency. 4. On the basis of 3,000Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f - 3{,}000}{3{,}000} \times 100\ (\%)$ where, f = measured value 5. Take measurement at middle section of tape. **Standard value: ±1.5%**  **Fig. 12** **Adjustment method** 1. Playback the test tape (middle). 2. Adjust so that frequency becomes 3,000Hz. 3. Tape speed adjustment VR shown in fig. 1. **Note:** Please use non metal type screwdriver when you adjust tape speed accuracy on this unit. **Tape speed fluctuation** Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows: $\text{Tape speed fluctuation} = \frac{f_1 - f_2}{3{,}000} \times 100\ (\%)$ f_1 = maximum value, f_2 = minimum value **Standard value: Less than 1%**
Ⓓ Playback frequency response Condition: * Playback mode * Normal tape mode * Output level control ··· MAX Equipment: * VTVM * Oscilloscope * Test tape··· QZZCFM	1. Test equipment connection is shown in fig. 9. 2. Place UNIT into playback mode. 3. Playback the frequency response test tape (QZZCFM). 4. Measure output level at 315Hz, 12.5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz and 63Hz and compare each output level with the standard frequency 315Hz, at LINE OUT. 5. Make measurement for both channels. Playback frequency response chart  **Fig. 13**

ITEM	MEASUREMENT & ADJUSTMENT

6. Make sure that the measured value is within the range specified in the frequency response chart (Fig. 13).

Adjustment method

1. If the measured value decreases at high frequency range, as shown in fig. 14, P.C.B. connection points (A) (L-CH) and (A') (R-CH) should be shorted (Fig. 18).

Compensation value

4kHz	6kHz	8kHz	10kHz	12.5kHz
around +0.1dB	around +0.2dB	around +0.5dB	around +0.8dB	around +1.2dB

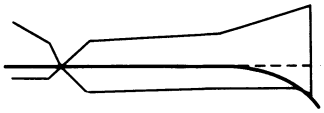


Fig. 14

2. If the measured value increases at high frequency range, as shown in fig. 15, P.C.B. connection points (A) (L-CH) and (A') (R-CH) should be opened (Fig. 18).

Compensation value

4kHz	6kHz	8kHz	10kHz	12.5kHz
around −0.1dB	around −0.2dB	around −0.5dB	around −0.8dB	around −1.2dB

Fig. 15

3. If the measured value decreases at middle frequency range, as shown in fig. 16, P.C.B. connection points (B) (L-CH) and (B') (R-CH) should be opened (Fig. 18).

Compensation value

700Hz	1kHz	2kHz	4kHz	10kHz
around +0.1dB	around +0.2dB	around +0.5dB	around +0.6dB	around +0.8dB

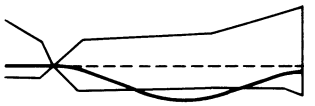


Fig. 16

4. If the measured value increases at middle frequency range, as shown in fig. 17, P.C.B. connection points (B) (L-CH) and (B') (R-CH) should be shorted (Fig. 18).

Compensation value

700Hz	1kHz	2kHz	4kHz	10kHz
around −0.1dB	around −0.2dB	around −0.5dB	around −0.6dB	around −0.8dB

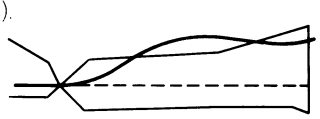


Fig. 17

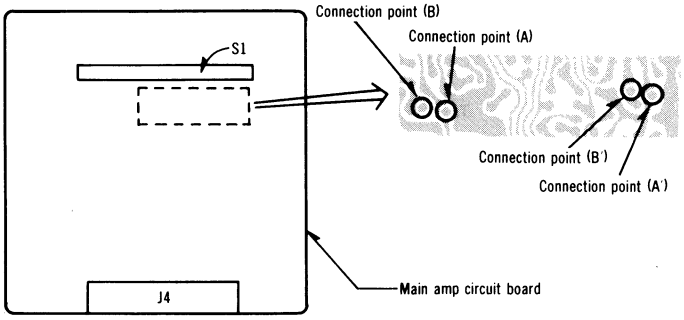


Fig. 18

E Playback gain

Condition:
- * Playback mode
- * Normal tape mode
- * Output level control ··· MAX

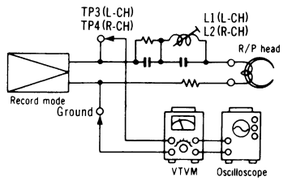
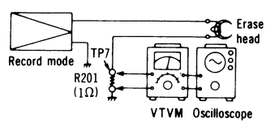
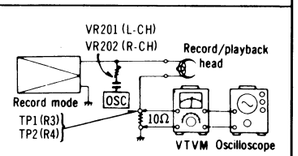
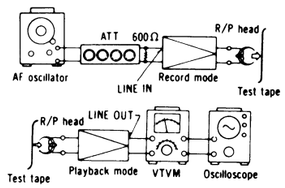
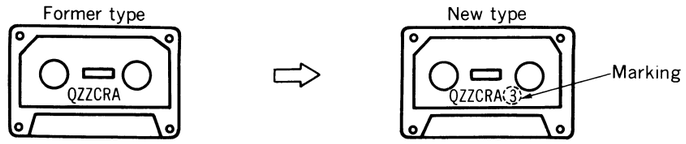
Equipment:
- * VTVM * Oscilloscope
- * Test tape ··· QZZCFM

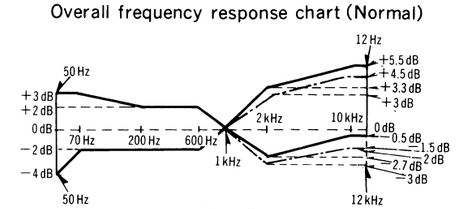
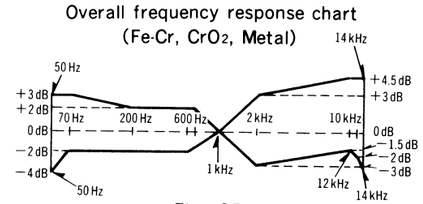
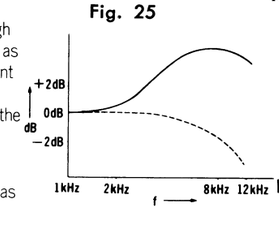
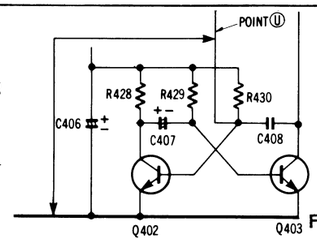
1. Test equipment connection is shown in fig. 9.
2. Playback standard recording level portion on test tape (QZZCFM 315Hz), and using VTVM measure the output level at LINE OUT.
3. Make measurement for both channels.

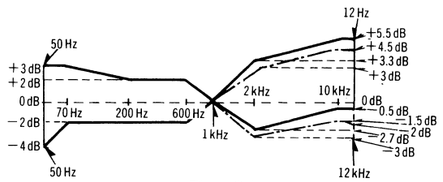
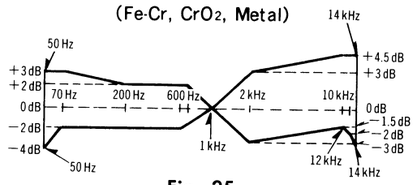
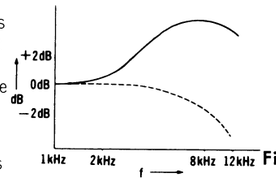
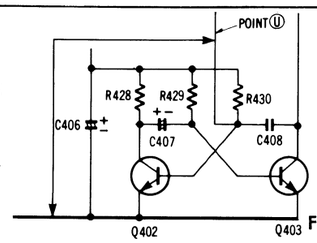
Standard value: around 0.7V

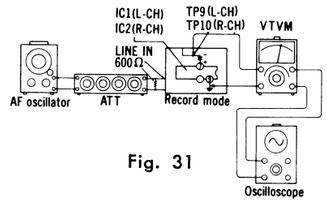
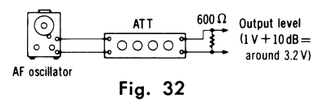
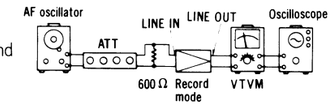
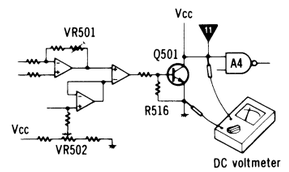
Adjustment

1. If measured value is not standard, adjust VR1 (L-CH), VR2 (R-CH) (See fig. 1).
2. After adjustment, check "D Playback frequency response" again.

ITEM	MEASUREMENT & ADJUSTMENT
Ⓕ Bias leakage Condition: * Record mode * Metal tape mode Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown in fig. 19. 2. Place UNIT into record mode. 3. Adjust trap coil L1 (L-CH), L2 (R-CH) so that measured value on VTVM becomes minimum. 4. Take adjustment for both channels.  **Fig. 19**
Ⓖ Erase current Condition: * Record mode * Metal tape mode Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown in fig. 20. 2. Place UNIT into record mode and measure voltage at test point 7. 3. Determine erase current with the following formula: $\text{Erase current (A)} = \frac{\text{Voltage across both ends of R201}}{1\ (\Omega)}$ **Standard value: 95±5mA (Tape selector ··· Metal)**  **Fig. 20** 4. If measured value is not within standard, adjust VR203.
Ⓗ Bias current Condition: * Record mode * Normal tape mode * Fe-Cr tape mode * CrO_2 tape mode * Metal tape mode * Output level control ··· MAX Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown in fig. 21. 2. Set UNIT into record mode, and normal tape mode. 3. Read voltage on VTVM and calculate bias current by following formula: $\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10\ (\Omega)}$ **Standard value: around 360μA (Normal tape mode)**  **Fig. 21** 4. If measured value is not within standard, adjust VR201 (L-CH) and VR202 (R-CH). 5. Set the tape selector to each position. 6. Make sure that the measured value is within standard. **Standard value: around 380μA (Fe-Cr tape mode), around 450μA (CrO_2 tape mode), around 700μA (Metal tape mode)**
Ⓘ Overall frequency response Condition: * Record/playback mode * Normal tape mode * Fe-Cr tape mode * CrO_2 tape mode * Metal tape mode * Level fine adjust ··· MAX * Output level control ··· MAX * Standard input level; MIC ····· −72±3.5dB LINE IN ··· −24±3.5dB Equipment: * VTVM * Oscilloscope * ATT * AF oscillator * Resistor (600Ω) * Test tape (reference blank tape) ··· QZZCRA for Normal ··· QZZCRX for CrO_2 ··· QZZCRY for Fe-Cr ··· QZZCRZ for Metal	Note 1: Before measuring and adjusting, make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response). Note 2: Test tape QZZCRA to be supplied after July 1980 has higher recording sensitivity in the middle and high frequency range.  **Fig. 22** * This chart indicates the standard values for the new type of QZZCRA when in use. * This chart indicates the standard values for the former type of QZZCRA when in use. The new type of QZZCRA is marked as shown in fig. 23.  **Fig. 23**

ITEM	MEASUREMENT & ADJUSTMENT
	Measurement 1. Test equipment connection is shown in fig. 22. 2. Place the test tape (QZZCRA) in the cassette holder. 3. Set UNIT into record mode, and normal tape mode. 4. Supply 1kHz signal from AF oscillator through ATT to LINE IN. 5. Adjust ATT so that input level is −20dB below standard recording level (standard recording level = 0VU). 6. At this time, LINE OUT level indicates 0.07V. 7. Record each frequency 50Hz, 70Hz, 600Hz, 1kHz, 2kHz, 8kHz, 10kHz, and 12kHz (14kHz for CrO_2, Fe-Cr and Metal). 8. Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1kHz. Overall frequency response chart (Normal)  **Fig. 24** 9. Make sure that the measured value is within the range specified in the overall frequency response chart (shown in fig. 24). 10. Change test tape to Fe-Gr (QZZCRY), CrO_2 (QZZCRX) and Metal (QZZCRZ). 11. Set UNIT into each tape mode. 12. Measure as same as manner from step (3) to step (8). 13. Make sure that the measured value is within the range specified in the overall frequency response chart for Fe-Cr, CrO_2 and Metal tape shown in fig. 25. Overall frequency response chart ($Fe\text{-}Cr$, CrO_2, Metal)  **Fig. 25** Adjustment—Using bias current 1. When the frequency response between the middle and high frequency range becomes higher than the standard value, as shown by the solid line in fig. 26, increases the bias current by turning VR201 (L-CH), VR202 (R-CH). 2. When it becomes lower, as shown by dotted line, reduce the bias current by turning VR201 (L-CH), VR202 (R-CH).  **Fig. 26** Note: For the method of bias current measurement, refer to "Ⓗ Bias current adjustment" on page 12.
Ⓙ Overall gain Condition: * Record/playback mode * Normal tape mode * Level fine adjust ··· MAX * Output level control ··· MAX * Standard input level; MIC ····· −72±3.5dB LINE IN ··· −24±3.5dB Equipment: * VTVM * AF oscillator * ATT * Oscilloscope * Resistor (600Ω) * Test tape (reference blank tape) ··· QZZCRA for Normal	1. Test equipment connection is shown in fig. 22. 2. Place UNIT into record mode, and normal tape mode. 3. Supply 1kHz signal (−24dB) from AF oscillator, through ATT to LINE IN. 4. Adjust ATT until monitor level at LINE OUT becomes 0.7V. 5. Using test tape, make recording. 6. Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.7V. 7. If measured value is not 0.7V, adjust VR3 (L-CH), VR4 (R-CH) (See fig. 1). 8. Repeat from step (2).
Ⓚ Fluorescent meter Condition: * Record mode * Level fine adjust ··· MAX * Output level control ··· MAX Equipment: * VTVM * AF oscillator * ATT * Oscilloscope * Resistor (600Ω)	1. Test equipment connection is shown in fig. 22. 2. As shown in fig. 27, connecting the base of Q402 (Point Ⓤ, see fig. 1 on page 8) and ground stops the oscillation of the astable multivibrator comprising Q402 and Q403. 3. Supply 1kHz signal (−24dB) to the LINE IN jack, then press the record button. 4. Adjust the ATT so that the output level at LINE OUT jack becomes 0.7V (The input level at this condition is termed the standard input level).  **Fig. 27**

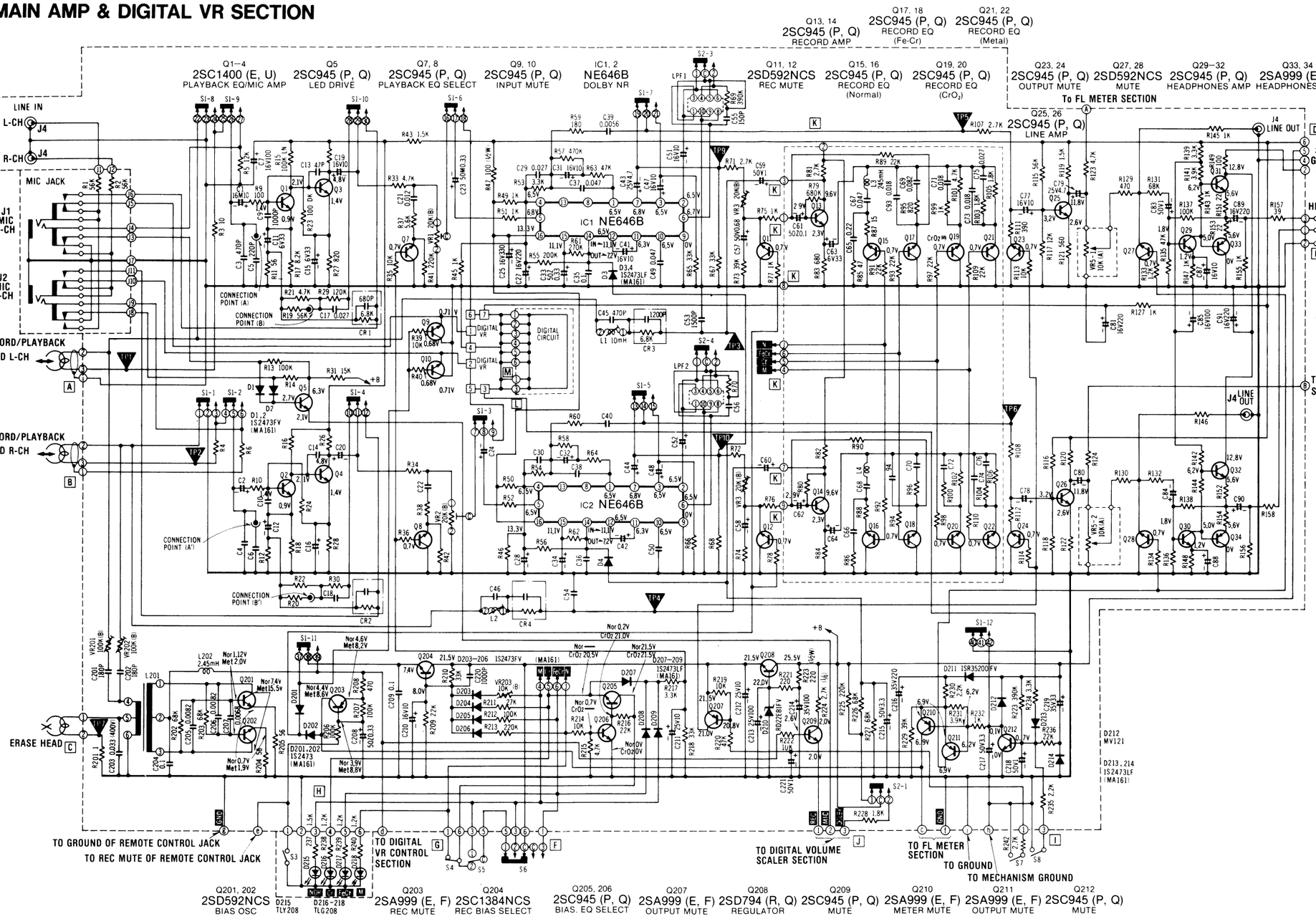
ITEM	MEASUREMENT & ADJUSTMENT
	Measurement 1. Test equipment connection is shown in fig. 22. 2. Place the test tape (QZZCRA) in the cassette holder. 3. Set UNIT into record mode, and normal tape mode. 4. Supply 1 kHz signal from AF oscillator through ATT to LINE IN. 5. Adjust ATT so that input level is −20 dB below standard recording level (standard recording level = 0 VU). 6. At this time, LINE OUT level indicates 0.07 V. 7. Record each frequency 50 Hz, 70 Hz, 600 Hz, 1 kHz, 2 kHz, 8 kHz, 10 kHz, and 12 kHz (14 kHz for CrO_2, Fe-Cr and Metal). 8. Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1 kHz. 9. Make sure that the measured value is within the range specified in the overall frequency response chart (shown in fig. 24). 10. Change test tape to Fe-Gr (QZZCRY), CrO_2 (QZZCRX) and Metal (QZZCRZ). 11. Set UNIT into each tape mode. 12. Measure as same as manner from step (3) to step (8). 13. Make sure that the measured value is within the range specified in the overall frequency response chart for Fe-Cr, CrO_2 and Metal tape shown in fig. 25. **Overall frequency response chart (Normal)**  Fig. 24 **Overall frequency response chart (Fe-Cr, CrO_2, Metal)**  Fig. 25 **Adjustment—Using bias current** 1. When the frequency response between the middle and high frequency range becomes higher than the standard value, as shown by the solid line in fig. 26, increases the bias current by turning VR201 (L-CH), VR202 (R-CH). 2. When it becomes lower, as shown by dotted line, reduce the bias current by turning VR201 (L-CH), VR202 (R-CH).  Fig. 26 **Note:** For the method of bias current measurement, refer to "Ⓗ Bias current adjustment" on page 12.
Ⓙ Overall gain Condition: * Record/playback mode * Normal tape mode * Level fine adjust ··· MAX * Output level control ··· MAX * Standard input level; MIC ····· −72 ± 3.5 dB LINE IN ··· −24 ± 3.5 dB Equipment: * VTVM * AF oscillator * ATT * Oscilloscope * Resistor (600 Ω) * Test tape (reference blank tape) ··· QZZCRA for Normal	1. Test equipment connection is shown in fig. 22. 2. Place UNIT into record mode, and normal tape mode. 3. Supply 1 kHz signal (−24 dB) from AF oscillator, through ATT to LINE IN. 4. Adjust ATT until monitor level at LINE OUT becomes 0.7 V. 5. Using test tape, make recording. 6. Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.7 V. 7. If measured value is not 0.7 V, adjust VR3 (L-CH), VR4 (R-CH) (See fig. 1). 8. Repeat from step (2).
Ⓚ Fluorescent meter Condition: * Record mode * Level fine adjust ··· MAX * Output level control ··· MAX Equipment: * VTVM * AF oscillator * ATT * Oscilloscope * Resistor (600 Ω)	1. Test equipment connection is shown in fig. 22. 2. As shown in fig. 27, connecting the base of Q402 (Point Ⓤ, see fig. 1 on page 8) and ground stops the oscillation of the astable multivibrator comprising Q402 and Q403. 3. Supply 1 kHz signal (−24 dB) to the LINE IN jack, then press the record button. 4. Adjust the ATT so that the output level at LINE OUT jack becomes 0.7 V (The input level at this condition is termed the standard input level).  Fig. 27

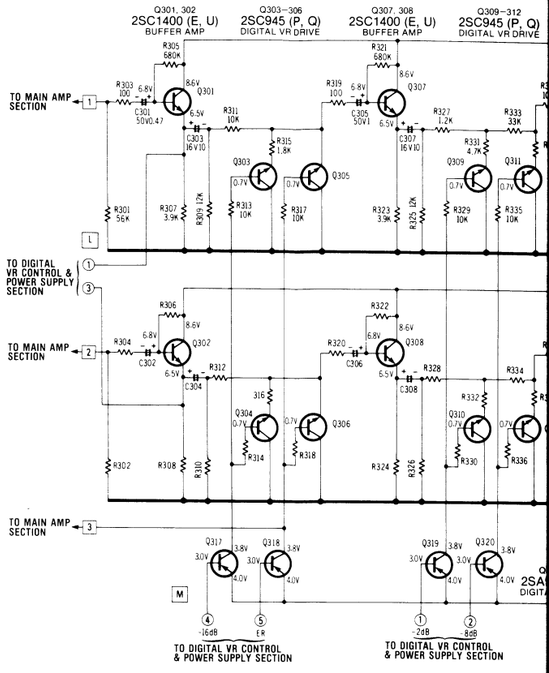
ITEM	MEASUREMENT & ADJUSTMENT
	5. Adjustment at "−20 dB": A. Adjust the ATT so that input level is −20 dB below standard recording level. B. Adjust VR401 so that the −20 dB segment lights up in the −20 ± 0.8 dB range (L-CH only) (See fig. 28). 6. Adjustment at "0 dB": A. Adjust the ATT so that the output level at LINE OUT jack becomes 0.7 V (The input level at this condition is termed the standard input level). B. Adjust VR402 so that the +1 dB segment lights up in the 0 ± 0.2 dB range of the standard input level (See fig. 29). 7. Repeat twice between steps (5) and (6) above. 8. Adjust ATT and check that all segments light up when an input signal level is increased to 10 dB higher than the standard input level (See fig. 30).  Fig. 28  Fig. 29  Fig. 30
Ⓛ Dolby NR circuit Condition: * Record mode * Dolby NR switch ··· IN/OUT * Level fine adjust ··· MAX Equipment: * VTVM * AF oscillator * ATT * Oscilloscope * Resistor (600 Ω)	1. Test equipment connection is shown in fig. 31. 2. Place UNIT into record mode, set the Dolby NR switch to OUT position and supply to LINE IN to obtain −34.5 dB at TP9 (L-CH), TP10 (R-CH) (frequency 5 kHz). 3. Confirm that the value at IN position is 8 (± 2.5) dB greater than the value at OUT position of Dolby NR switch.  Fig. 31
Ⓜ Digital input level controller Condition: * Record mode * Level fine adjust ··· Indication number "3" and "15" Equipment: * VTVM * AF oscillator * ATT * Oscilloscope * Resistor (600 Ω) * DC voltmeter	1. Increase the output level of the oscillator to 10 dB. **Notes:** The adjustment of this circuit is performed by applying about 1.25 V, 26 dB higher than the standard recording level (−24 ± 3.5 dB), and the input signal of about 0.08 V, 2 dB higher than the standard recording level, to LINE IN. Normally, the output of the oscillator is adjusted so that the output from the attenuator is 1 V when the attenuator is set to 0 dB. However, this does not generate an output higher than 1 V, and requires the output of the oscillator to be increased by 10 dB. In this case, the output level from the attenuator is around 3.2 V (Fig. 32).  Fig. 32  Fig. 33 2. Test equipment connection is shown in fig. 33. 3. Place the test tape in the cassette holder. 4. Press the record button and pause button. 5. Push the level fine adjust button so that the level sensor read-out display is 15. 6. Supply 1 kHz signal from AF oscillator, through ATT to LINE IN. 7. Adjust ATT until monitor level at LINE OUT becomes 0.7 V. The attenuation of ATT at this time is the standard recording level. (Since the output level of the AF oscillator has been increased by 10 dB, the attenuation of ATT is at around −34 dB.) 8. Apply 1 kHz signal (around 1.25 V), 26 dB higher than the standard recording level, to LINE IN. (Apply it simultaneously to LEFT and RIGHT channels.) 9. Push the level fine adjust button so that the level sensor read-out display is "3". 10. Connect the DC voltmeter or oscilloscope (DC display) to TP11 (Fig. 34). 11. Slowly turn VR502 clockwise and stop it when the DC voltmeter display changes from L (0 V) to H (about 5 V). 12. Next, apply 1 kHz signal (around 0.08 V), 2 dB higher than the standard recording level, to LINE IN. 13. Push the level fine adjust button so that the level sensor read-out display is "15". 14. Slowly turn VR501 counterclockwise and stop it when the potential of TP11 changes from L to H. 15. Repeat steps (8) to (14) above several times.  Fig. 34

RS-M51

SCHEMATIC DIAGRAM

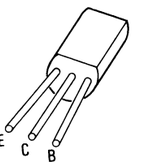
MAIN AMP & DIGITAL VR SECTION





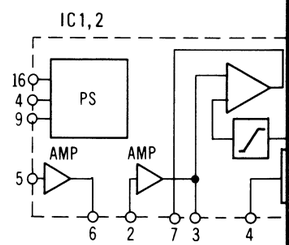
TERMINATION (BOTTOM VIEW)

Q1–4, 5, 7–34, 201–212



EQUIVALENT CIRCUIT

IC1, 2



LPF1,

NOTES:

- S1-1—S1-14 ····· Record/playback select switch (shown in playback position).
- S2-1—S2-4 ····· Dolby NR IN/OUT select switch (shown in OUT position).
- S3 ····· Record muting switch (shown in OFF position).
- S4, 5 ····· Auto tape select switch (shown in normal position).
- S6 ····· Tape manual/auto select switch (shown in auto position).
- S7 ····· Fast wind muting switch (shown in OFF position).
- S8 ····· Muting switch (shown in OFF position).
- VR1, 2 ····· Playback gain adjustment VR.
- VR3, 4 ····· Recording gain adjustment VR.
- VR5-1, 5-2 ····· Output level control.
- VR201, 202 ····· Bias current adjustment VR.
- VR203 ····· Erase current adjustment VR (for metal tape).
- L1, 2 ····· Bias leakage adjustment coil.
- Connection points (A), (A'), (B) and (B') ····· For playback frequency response adjustment.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. K = 1,000 Ω, M = 1,000 kΩ.
- Capacity are in microfarads (μF) unless specified otherwise. P = Pico-farads.
- The mark (▼) shows test point. e.g. ▼ = Test point 1.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position. For measurement, use VTVM.

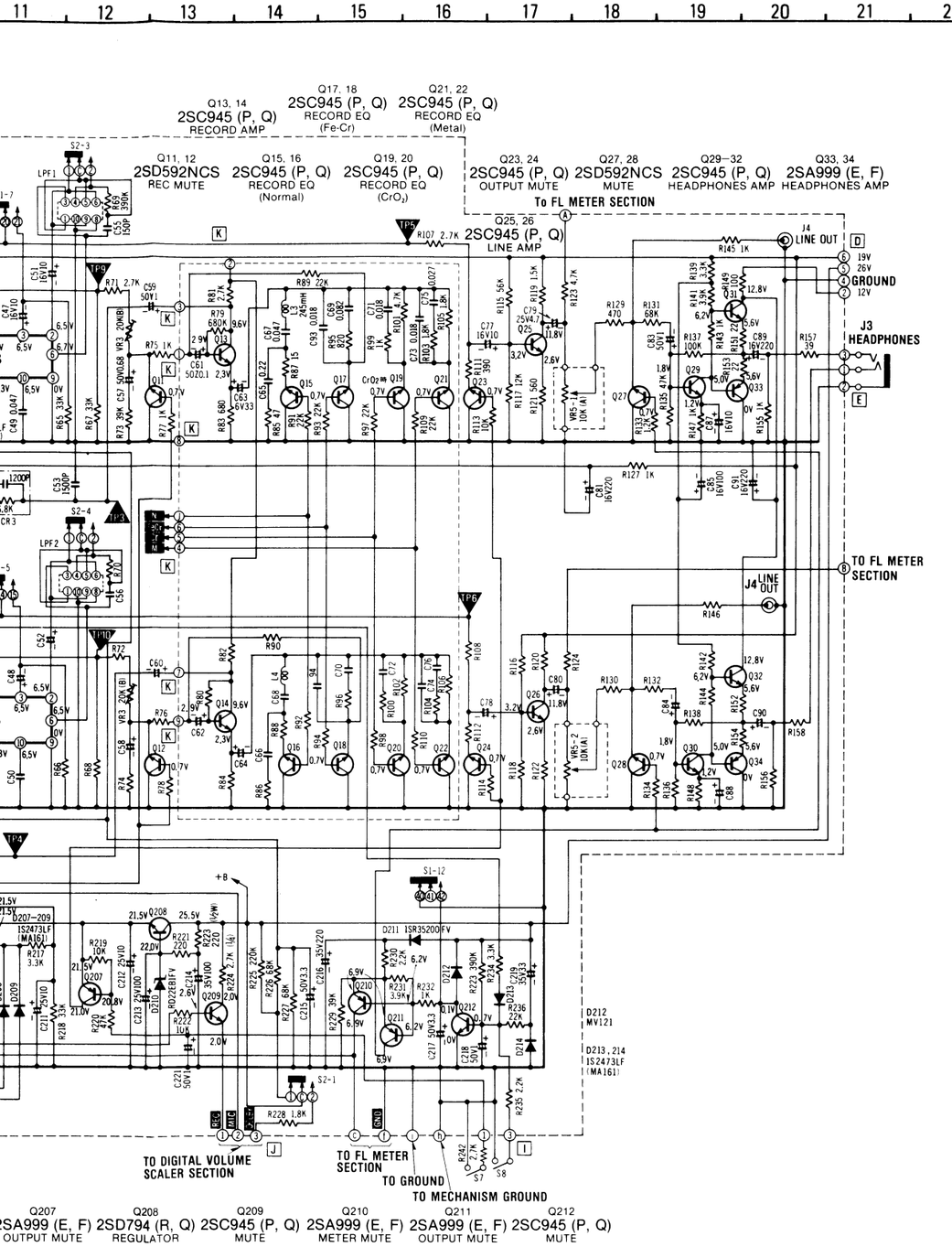
NOTES:

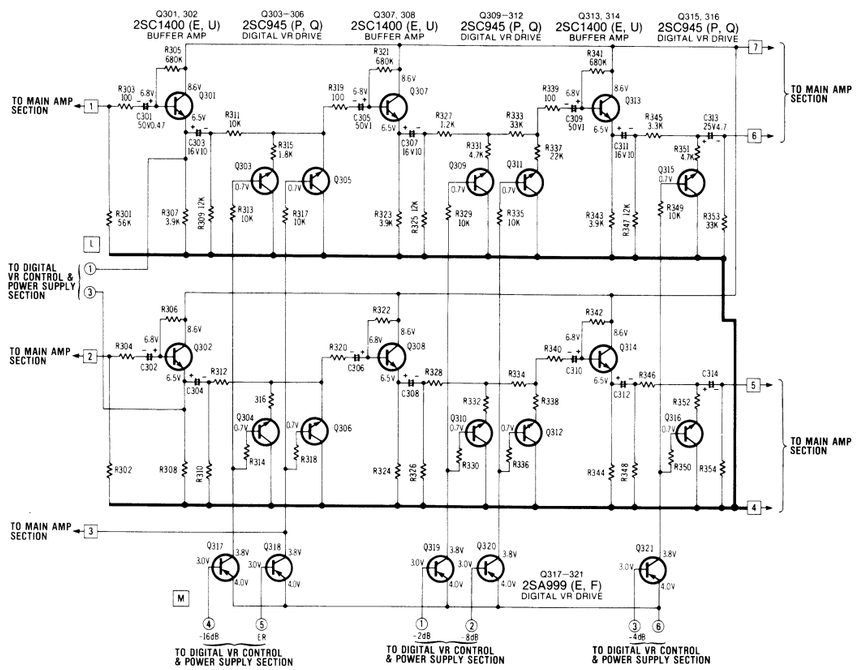
- Nor ····· Normal tape mode
- CrO_2 ····· CrO_2 tape mode
- Met ····· Metal tape mode

SPECIFICATIONS

* Level fine adjust ··· MAX
* Output level control ··· MAX

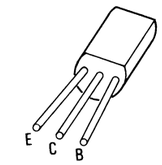
Playback S/N ratio * Test tape ··· QZZCFM	More than 46 dB (without NAB filter)
Overall distortion * Test tape ··· QZZCRA for Normal ··· QZZCRX for CrO_2 ··· QZZCRY for Fe-Cr	Less than 3% (Normal) Less than 3.5% (Fe-Cr, CrO_2, Metal)
Overall S/N ratio * Test tape ··· QZZCRA	More than 43 dB (without NAB filter)





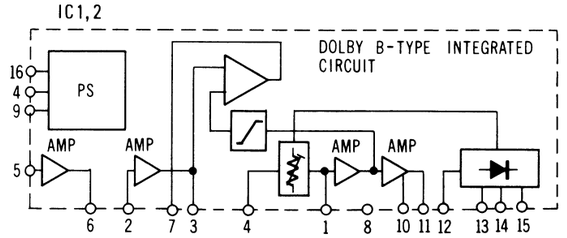
TERMINATION (BOTTOM VIEW)

Q1–4, 5, 7–34, 201–212

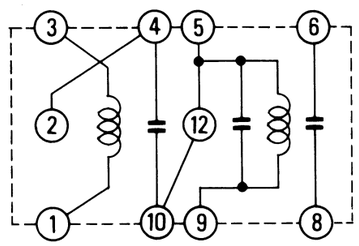


EQUIVALENT CIRCUIT

IC1, 2



LPF 1, 2



SPECIFICATIONS

* Level fine adjust ··· MAX
* Output level control ··· MAX

Playback S/N ratio * Test tape ··· QZZCFM	More than 46 dB (without NAB filter)
Overall distortion * Test tape ··· QZZCRA for Normal ··· QZZCRX for CrO_2 ··· QZZCRY for Fe-Cr	Less than 3% (Normal) Less than 3.5% (Fe-Cr, CrO_2, Metal)
Overall S/N ratio * Test tape ··· QZZCRA	More than 43 dB (without NAB filter)

NOTES:

- Nor ····· Normal tape mode
- CrO_2 ····· CrO_2 tape mode
- Met ····· Metal tape mode

····· Erase current adjustment VR (for metal tape).
····· Bias leakage adjustment coil.
s (A), (A'), (B) and (B') ····· For playback frequency response adjustment.
ohms (Ω), 1/4 watt unless specified otherwise.
1,000 kΩ.
icrofarads (μF) unless specified otherwise.
ows test point. e.g. ∇=Test point 1.
s shown in circuitry are under no signal condition and record mode with
minimum position.
use VTVM.

NOTES: RESISTORS
ERD ··· Carbon
ERG ··· Metal-oxide
ERS ··· Metal-oxide
ERO ··· Metal-film
ERX ··· Metal-film
ERQ ··· Fuse type metallic
ERC ··· Solid
ERF ···· Cement

CAPACITORS
ECG□ ····· Ceramic
ECK□ ····· Ceramic
ECC□ ····· Ceramic
ECF□ ····· Ceramic
ECQM ····· Polyester film
ECQE ····· Polyester film
ECQF ····· Polypropylene
ECE□ ····· Electrolytic
ECE□N ··· Non polar electrolytic
ECQS ····· Polystyrene
ECS□ ····· Tantalum
QCS ····· Tantalum

Ref. No.	Part No.
RESISTORS	
R1, 2	ERD25TJ563
R3, 4	ERD25FJ100
R5, 6	ERD25TJ123
R9, 10	ERD25FJ101
R11, 12	ERD25FJ560
R13, 14, 15, 16	ERD25TJ104
R17, 18	ERD25FJ822
R19, 20	ERD25TJ563
R21, 22	ERD25FJ472
R23, 24	ERD25TJ104
R25, 26	ERD25FJ472
R27, 28	ERD25FJ821
R29, 30	ERD25TJ124
R31	ERD25FJ152
R33, 34	ERD25FJ472
R35, 36	ERD25TJ103
R37, 38	ERD25FJ562
R39, 40	ERD25FJ103
R41, 42	ERD25TJ224
R43	ERD25FJ152
R45, 46	ERD25FJ102
R47	ERC12GJ101
R49, 50, 51, 52	ERD25FJ102
R53, 54	ERD25FJ332
R55, 56	ERD25TG2003
R57, 58	ERD25TJ474
R59, 60	ERD25FJ181
R61, 62	ERD25TJ274
R63, 64	ERD25TJ473
R65, 66, 67, 68	ERD25TJ333
R69, 70	ERD25TJ394
R71, 72	ERD25FJ272
R73, 74	ERD25FJ392
R75, 76, 77, 78	ERD25FJ102
R79, 80	ERD25TJ684
R81, 82	ERD25FJ272
R83, 84	ERD25FJ681
R85, 86	ERD25FJ470
R87, 88	ERD25FJ150
R89, 90, 91, 92, 93, 94	ERD25TJ223
R95, 96	ERD25FJ821
R97, 98	ERD25TJ223
R99, 100	ERD25FJ102
R101, 102	ERD25FJ472
R103, 104, 105, 106	ERD25FJ182
R107, 108	ERD25FJ272
R109, 110	ERD25TJ223
R111, 112	ERD25FJ101
R113, 114	ERD25FJ103
R115, 116	ERD25TJ563
R117, 118	ERD25TJ123
R119, 120	ERD25FJ152
R121, 122	ERD25FJ561
R123, 124	ERD25TJ153
R127	ERD25FJ102
R129, 130	ERD25FJ471
R131, 132	ERD25TJ683
R133, 134	ERD25FJ122
R135, 136	ERD25TJ473
R137, 138	ERD25TJ104
R139	ERD25FJ332
R141, 142	ERD25FJ392
R143, 144, 145, 146, 147, 148	ERD25FJ102
R149	ERD25FJ101
R151, 152, 153, 154	ERD25FJ220
R155, 156	ERD25FJ102
R157, 158	ERD25FJ390
R201	ERD25FJ1R0
R202, 203	ERD25TJ683
R204, 205	ERD25FJ560
R206, 207	ERD25TJ104
R208	ERD25FJ471
R209	ERD25TJ223
R210	ERD25TJ333
R211	ERD25TJ273
R212	ERD25TJ104
R213	ERD25TJ224
R214	ERD25FJ103
R215	ERD25FJ472
R216	ERD25TJ223
R217	ERD25FJ332
R218	ERD25TJ333
R219	ERD25FJ103
R220	ERD25TJ473
R221	ERD25FJ221
R222	ERD25TJ103
R223, 224, 225, 226, 227	ERD25TJ683
R228	ERD25FJ182
R229	ERD25TJ393
R230	ERD25FJ222
R231	ERD25FJ392
R232	ERD25FJ102
R233	ERD25TJ394
R234	ERD25FJ332
R235	ERD25FJ222
R236	ERD25TJ223
R237	ERD25FJ152
R238	ERD25FJ102
R239, 240	ERD25FJ122
R242	ERD25FJ272
R243, 244, 245, 246, 247, 248	ERD25TJ563
R249, 430	ERD25TJ684
R501, 502	ERD25TJ223
R503, 504, 505, 506	ERD25FJ102
R507	ERD25FJ561
R508	ERD25TJ105
R509	ERD25FJ102
R510	ERD25FJ330
R511	ERD25FJ103
R512	ERD25FJ122
R513	ERD25FJ822
R514	ERD25TJ183
R515	ERD25FJ102
R516	ERD25FJ332
R517	ERD25FJ103
R518	ERD25FJ222
R519	ERD25FJ472
R520	ERD25TJ123
R521	ERD25TJ823
R522	ERD25TJ474
R523, 524, 525, 526, 527	ERD25TG2003
R528, 529, 530	ERD25TG1003
R531, 532, 533, 534, 535	ERD25FJ562
R537	ERD25FJ471
R538	ERD25FJ122
R540	ERD25FJ121
R541	ERD25FJ391
R542	ERD25TJ183
R543, 544	ERD25FJ122
R545	ERD25TJ223
R546	ERD25FJ332
R547	ERD25TJ223
R548	ERD25FJ222
R549, 550	ERD25TJ223
R551	ERD25FJ471
R552	ERD25TJ223
R553	ERD25FJ222
R555, 556, 557, 558, 559	ERD25TJ123
R560	ERD25FJ562
R561	ERD25FJ103
R562	ERD25FJ102
R563	ERD25FJ222
R564, 565	ERD25TJ473
R566	ERD25TJ333
R567	ERD25FJ470
R568	ERD25TJ153
R569 △	ERD25FJ102
R570	ERD50FJ100
R571, 572	
△	ERD25FJ821
R573 △	ERD50FJ470
R574	ERD25FJ122
R575	ERD25TJ393
R576	ERD25TJ224
R578, 579	ERD25TJ223
R580	ERD25TJ473
R581	ERD25TJ223
R590	ERD25FJ471
R591	ERD25FJ561
R592	ERD25FJ471
R593, 594	ERD25FJ391
R595	ERD25FJ471
R596, 597	ERD25FJ121
R601	ERD25FJ222
R602	ERD25TJ223
R603	ERD25FJ271
R701	ERD25FJ181
R702	ERD25FJ151
VARIABLE RESISTORS	
VR1, 2, 3, 4	EVNK4AA00B24
VR5	EWKENAK15A14
VR201, 202	EVNK4AA00B15
VR203	EVNK4AA00B14
VR401	EVNK4AA00B52
VR402	EVNK4AA00B14
VR501	EVNK4AA00B24
VR502	EVNK4AA00B23
CAPACITORS	
C1, 2	ECEA16M10R
C3, 4	ECKD1H471KB
C5, 6	ECKD1H221KB
C7	ECEA1ES101
C9, 10	ECKD1H102KB
C11, 12	ECEA1CS330
C13, 14	ECCW1H470K
C15, 16	ECEA1CS330
C17, 18	ECQM1H273JZ
C19, 20	ECEA1HS100
C21, 22	ECQM1H123KZ
C23, 24	ECEA50MR33R
C25	ECEA1CS331
C27, 28	ECEA1AS221
C29, 30	ECQM1H273JZ
C31, 32	ECEA1HS100
C33, 34	ECEA50ZR33
C35, 36	ECFWD104KXY
C37, 38	ECQM1H472JZ
C39, 40	ECQM1H562JZ
C41, 42	ECEA1HS100
C43, 44	ECEA1JS4R7
C45, 46	ECQP1471JZ
C47, 48	ECEA1HS100
C49, 50	ECQM1H473KZ
C51, 52	ECEA1HS100
C53, 54	ECKD1H152KB
C55, 56	ECCW1H151KC
C57, 58	ECEA50ZR68
C59, 60	ECEA2AS010
C61, 62	ECEA50ZR1
C63, 64	ECEA1CS330
C65, 66	ECQV05224JZ
C67, 68	ECQM1H473JZ
C69, 70	ECQM1H823KZ
C71, 72, 73, 74	ECQM1H183KZ
C75, 76	ECQM1H273KZ
C77, 78	ECEA1HS100
C79, 80	ECEA1JS4R7
C81	ECEA1CS221
C83, 84	ECEA2AS010
C85	ECEA1ES101
C87, 88	ECEA1HS100
C89, 90, 91	ECEA1CS221
C93, 94	ECQM1H183KZ
C201, 202	ECCW1H181K
C203	ECQF4333KZH
C204	ECFWD104KXY
C205, 206	ECQM1H822KZ
C207	ECQM1H682KZ
C208	ECEA50ZR33
C209	ECFWD104KXY
C210, 211, 212	ECEA1HS100
C213	ECEA1ES101
C214	ECEA1VS101
C215	ECEA2AS3R3
C216	ECEA1VS221
C217	ECEA2AS3R3
C218	ECEA2AS010
C219	ECEA1VS330
C220	ECKD1H102KB
C221	ECEA2AS010
C301, 302	ECQM1H682KZ
C303, 304	ECEA16M10R
C305, 306	ECEA50ZI
C307, 308	ECEA16M10R
C309, 310	ECEA50ZI
C311, 312	ECEA16M10R
C313, 314	ECEA1JS4R7
C401, 402	ECEA50ZR22
C403, 404	ECEA2AS3R3
C405	ECQM1H393KZ
C406	ECEA1HS100
C407	ECEA1JS4R7
C408	ECFWD104KXY
C501, 502	ECEA1JS4R7
C503	ECEA2AS3R3
C504, 505	ECQM1H333KZ
C506, 507	ECEA1HS100
C508, 509	ECKD1H103PF
C510	ECEA1AS221
C511	ECEA1CS330
C512	ECEA1HS100
C513	ECFWD104KXY
C515	ECEA1AS470
C516	ECEA1AS471
C517 △	ECET16R103S
C518	ECEA50ZI
C519	ECEA1ES101
C520 △	ECEA1ES101
C521	ECEA1VS102
C522	ECKD1H103PF
C523	ECEA1ES331
C524 △	ECEA1VS331
C525 △	ECEA1VS102
C526 △	ECEA1CS222
C527, 528	ECKF1E473ZV
C529	ECEA1AS470
C550, 551, 552, 553	ECKD1H102KB

NOTE: ⚠ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.
C554, 555, 556, 557, 558, 559, 560	ECKD1H681KB
C561, 562	ECKD1H103PF
C563	ECEA1AS470
C564, 565, 566	ECKD1H103PF
C567	ECKF1E473ZV
C568	ECKD1H103PF
C569	ECKD1E104ZFZ
C570 ⚠	ECKD1H103PF
C701 NPJ ⚠	ECQM6103MZ
※For PX.	
※For Asia, Latin America, Middle East and Africa areas.	
COMBINATION PARTS	
CR1, 2	EXRP681K682
CR3, 4	EXRP122K682
LPF1, 2	QLM9Z6K
XR501	RM5222K
TRANSISTORS	
Q1, 2, 3, 4	2SC1400E
Q5	2SC945
Q7, 8, 9, 10	2SC945
Q11, 12	2SD592NCS
Q13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26	2SC945
Q27, 28	2SD592NCS
Q29, 30, 31, 32	2SC945
Q33, 34	2SA999E
Q201, 202	2SD592NCS
Q203	2SA999E
Q204	2SC1384
Q205, 206	2SC945
Q207	2SA999E
Q208	2SD794

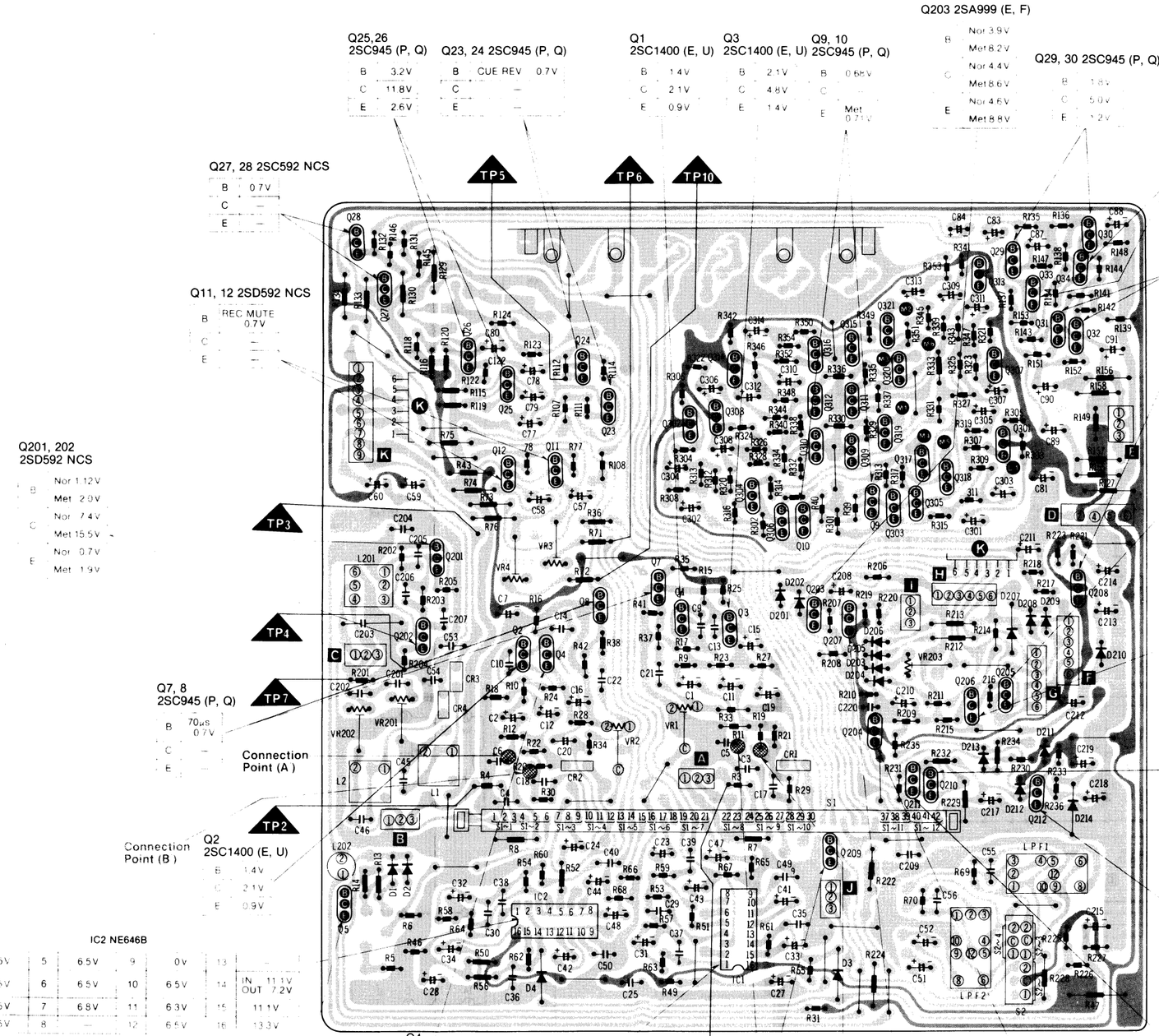
Ref. No.	Part No.
Q209	2SC945
Q210, 211	2SA999E
Q212	2SC945
Q301, 302	2SC1400E
Q303, 304, 305, 306	2SC945
Q307, 308	2SC1400E
Q309, 310, 311, 312	2SC945
Q313, 314	2SC1400E
Q315, 316	2SC945
Q317, 318, 319, 320, 321	2SA999E
Q401, 402, 403	2SC945
Q501, 502, 503, 504	2SC945
Q505	2SA999E
Q506, 507, 508	2SC1847
Q509, 510	2SC945
Q601, 602, 603, 604	2SC2021
Q701, 702	2SC2021
DIODES & RECTIFIERS	
D1, 2, 3, 4	MA161
D201, 202, 203, 204, 205, 206, 207, 208, 209	MA161
D210	RD22EB1
D211	SM112
D212	MV121
D213, 214	MA161
D215	TLY208
D216, 217, 218	TLG208
D401, 402	MA161
D403	MV121

Ref. No.	Part No.
D404, 405	MA161
D501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512	MA161
D513 ⚠	RD22EB1
D514 ⚠	RD20EB3
D515, 516, 517, 518, 519, 520, 521, 522	SM112
⚠	SM112
D523	SM112
D601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615	TLR205
D616	TLY205
D618	LN220RP
D619, 620	LN320GP
D701	SLR54URC
D702	SLR54GC
INTEGRATED CIRCUITS	
IC1, 2	NE646B
IC401	AN6552
IC402	AN6870
IC501, 502, 503, 504	AN6552
IC511	M74LS00P
IC512	M74LS04P
IC513	M74LS00P
IC521	M74LS04P
IC522	M53202P
IC523	M74LS221P
IC531	M74LS193P
IC532	M74LS08P
IC533	M74LS00P
IC541	M74LS20P
IC542	M53275P
IC543	M74LS10P
IC551	UPC78M05H
IC601	M53242P

Ref. No.	Part No.	Part Name & Description
TRANSFORMER		
T701 NPJ ⚠	QLPD58EME	Power Transformer
※For PX.		
※For Asia, Latin America, Middle East and Africa areas.		
A ⚠	QLPA57ELE	〃
※For Australia.		
COILS		
L1, 2	QLQX1032W	Bias Trap Coil
L3, 4	QLQX2421Y	Peaking Coil
L201	QLBO194K	Bias Oscillation Coil
L202	QLQX2421Y	RF Trap Coil
SWITCHES		
S1	QSSE204T	Slide Switch (Record/Playback Selector)
S2	QSW4207	Push Switch (Dolby IN/OUT Selector)
S3	QSW1111H	Push Switch (Rec-Mute ON/OFF)
S4	QSB0253M	Leaf Switch (Auto Tape Selector)
S5	QSM0067	Micro Switch (Auto Tape Selector)
S6	QSS1048	Slide Switch (Tape Select Manual/Auto)
S7	QSB0251I	Leaf Switch (Fast Wind Muting Switch)
S8	QSB0251I	Leaf Switch (Playback Muting Switch)
S701, 702, 703	QSW1111H	Push Switch (Level Fine Adjust UP/DOWN and Auto-Rec Sensor)
S704 NPJ ⚠	RSH1A11ZAS	Push Switch (Power ON/OFF)
※For PX.		
※For Asia, Latin America, Middle East and Africa areas.		
A ⚠	RSH1B04ZAS	〃
※For Australia.		
S705 NPJ ⚠	QSR1407H	Rotary Switch (AC Power Voltage Selector)
※For PX.		
※For Asia, Latin America, Middle East and Africa areas.		
FUSE		
F1 ⚠	XBA2E03NS5	Fuse (0.3A)
JACKS		
J1, 2	QJA0253	Microphone Jack
J3	QJA0255H	Headphones Jack
J4	QEJ5003S	Jack Board (LINE IN/OUT Jack)
J5	QJS1956H	Remote Control Jack

CIRCUIT BOARDS

MAIN AMP CIRCUIT BOARD

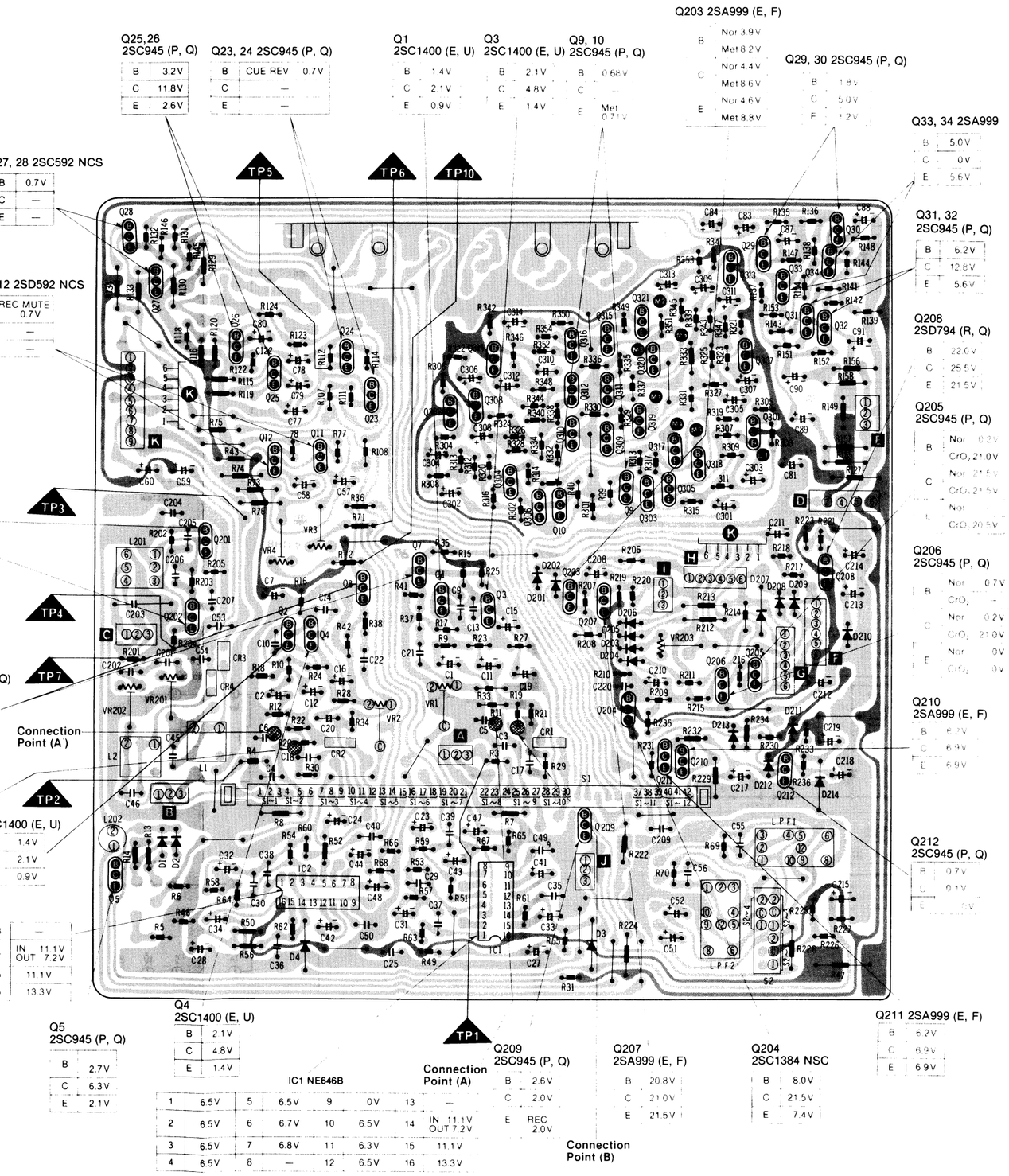


EQUALIZER C

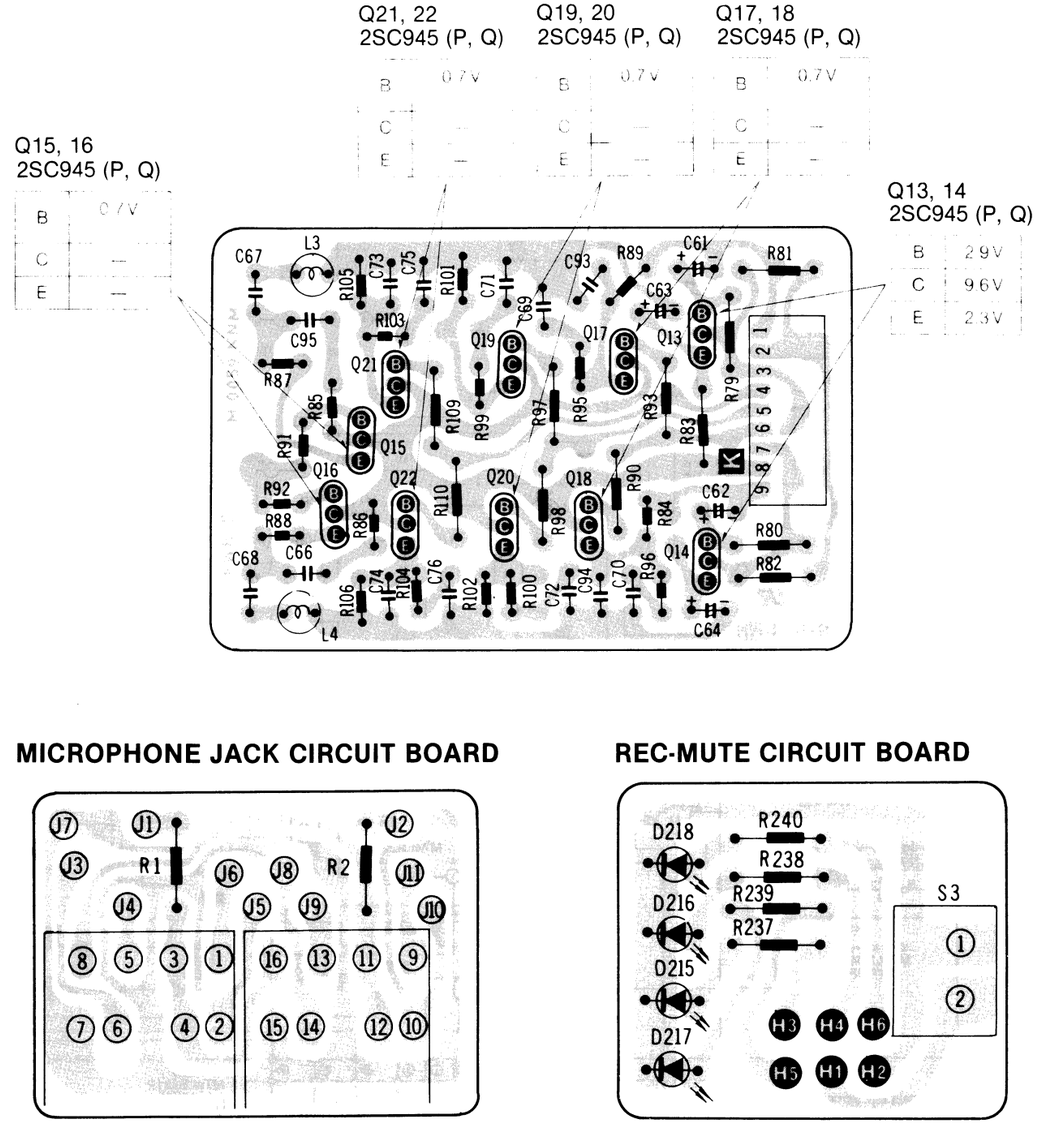
MICROPHO

NOTES:
- Nor ····· N
- CrO2 ····· C
- Met ····· M

RDS
RD



EQUALIZER CIRCUIT BOARD



MICROPHONE JACK CIRCUIT BOARD

REC-MUTE CIRCUIT BOARD

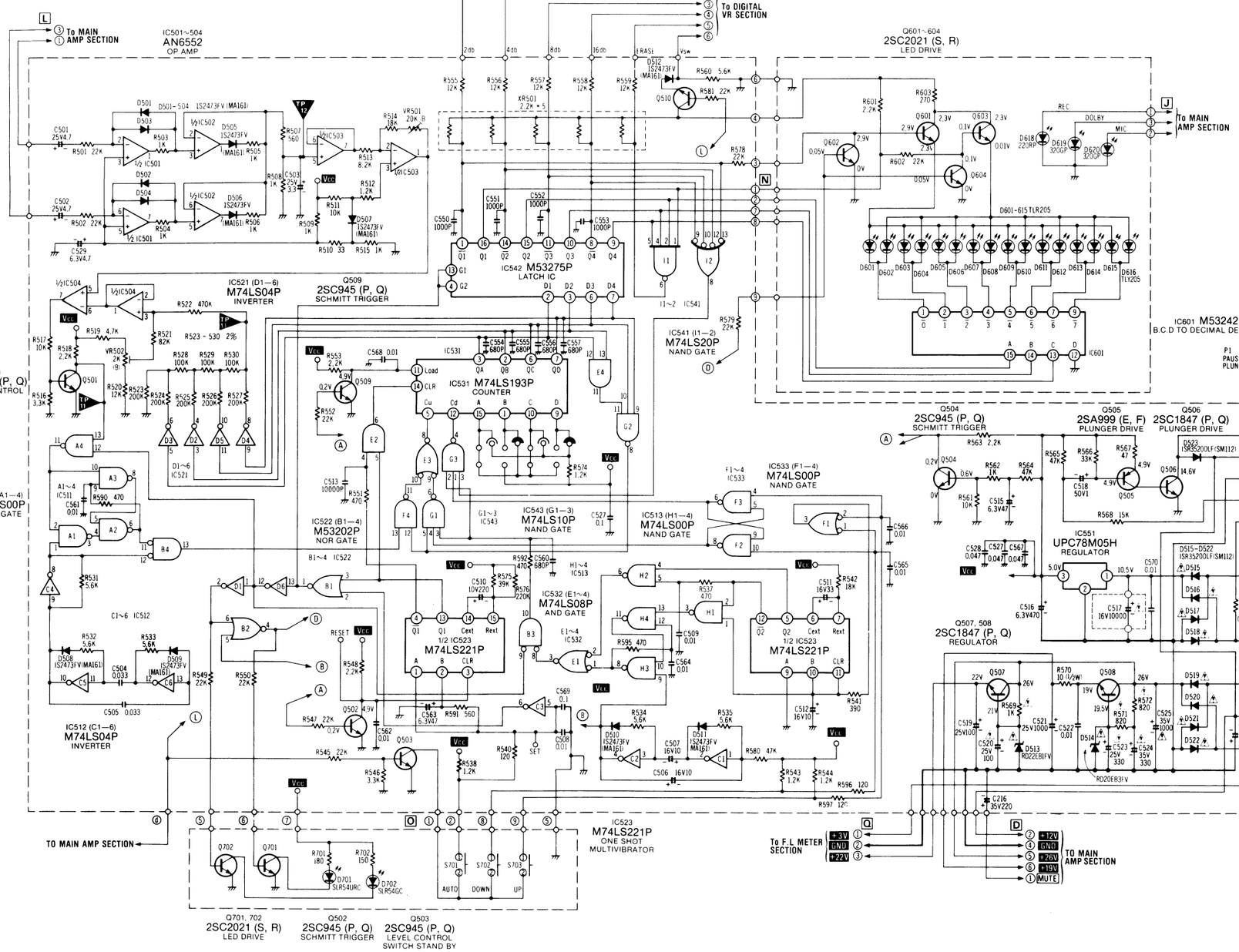
NOTES:
- Nor ····· Normal tape mode
- CrO_2 ····· CrO_2 tape mode
- Met ····· Metal tape mode

NOTES:
- The circuit shown in ▒▒▒ on the conductor is +B (bias) circuit.
- The circuit shown in ▒▒▒ on the conductor indicates printed circuit on the back side of the printed circuit board.
- Values indicated in ▒▒▒ are DC voltage between the ground and electrical parts.
- The voltage indicates are measured during record mode.

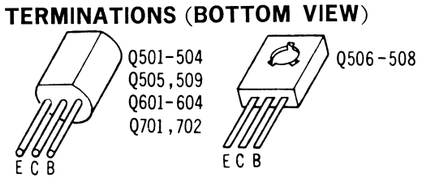
RS-M51

SCHEMATIC DIAGRAM

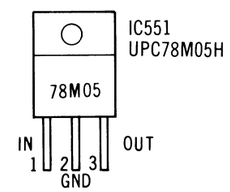
POWER SUPPLY, DIGITAL VR CONTROL & FL METER SECTION



TERMINATIONS (BOTTOM VIEW)

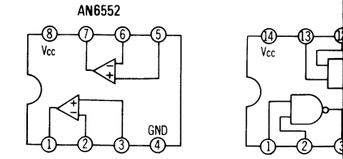


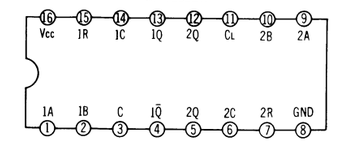
(SIDE VIEW)

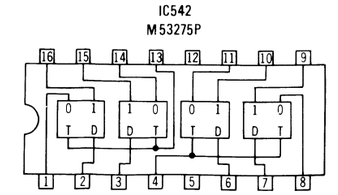


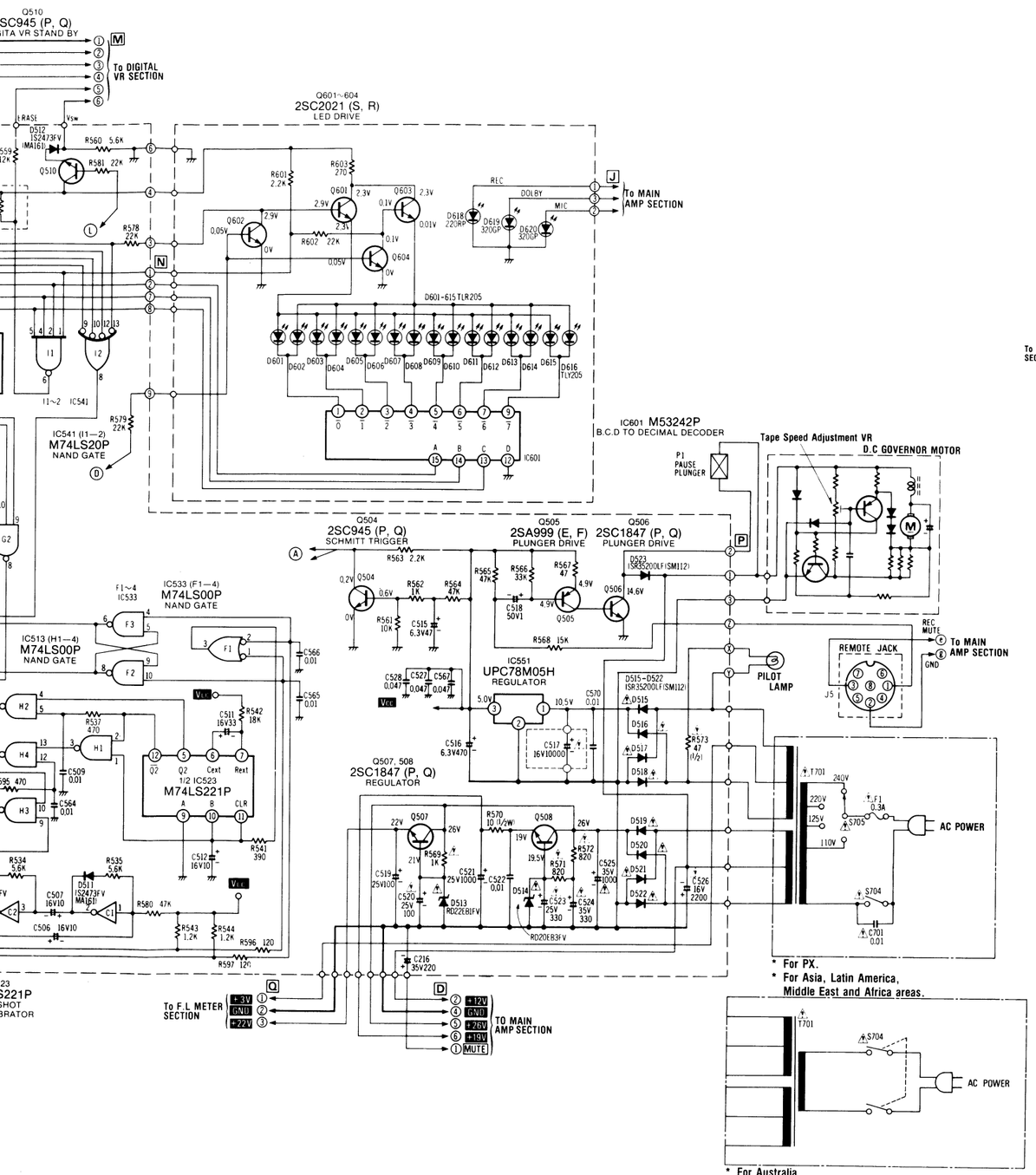
NOTES:

- S701 ..... Auto-rec sensor setting switch.
- S702 ..... Level fine adjust "down" switch.
- S703 ..... Level fine adjust "up" switch.
- S704 ..... Power ON/OFF switch (shown in OFF position).
- S705 ..... AC power voltage select switch.
  For PX.
  For Asia, Latin America, Middle East and Africa areas.
- VR401 ..... FL meter adjustment VR (for −20dB indication).
- VR402 ..... FL meter adjustment VR (for 0dB indication).
- VR501 ..... Level sensor read-out indication adjustment VR (for indication number "3"/input level "−22dB").
- VR502 ..... Level sensor read-out indication adjustment VR (for indication number "15"/input level "+2dB").
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. K=1,000Ω, M=1,000kΩ.
- Capacity are in microfarads (μF) unless specified otherwise. P=Pico-farads.
- The mark (▼) shows test point. e.g. ▼=Test point 1.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position. For measurement, use VTVM.
- ⚠ indicates that only parts specified by the manufacturer used for safety.



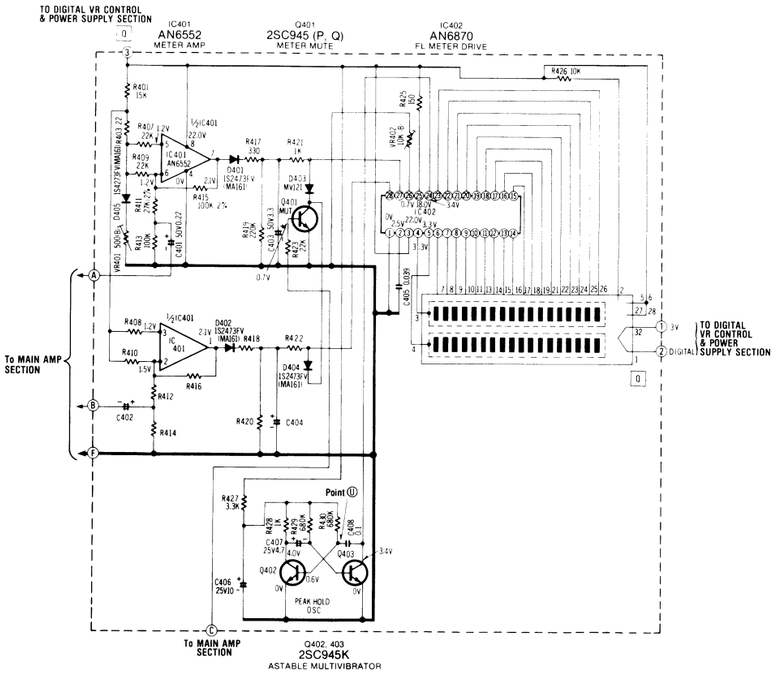






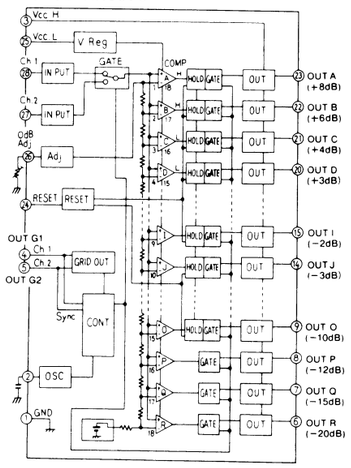
* For PX.
* For Asia, Latin America, Middle East and Africa areas.

* For Australia.

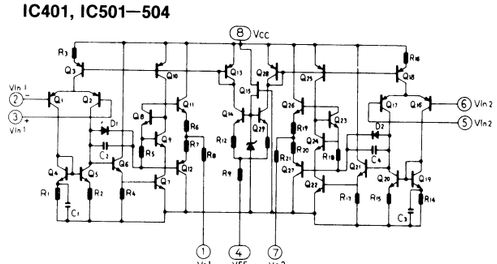


EQUIVALENT CIRCUIT

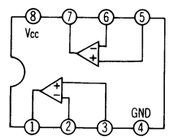
IC402 AN6870



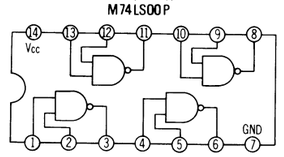
IC401, IC501—504



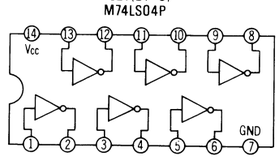
IC401
AN6552



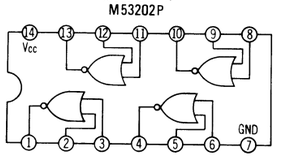
IC511(A1—4) 513(H1—4) 533(F1—4) M74LS00P



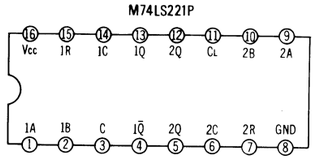
IC512(C1—6) 521(D1—6) M74LS04P



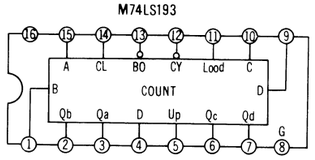
IC522(B1—4) M53202P



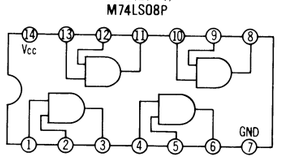
IC523
M74LS221P



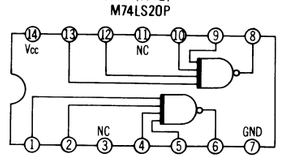
IC531
M74LS193



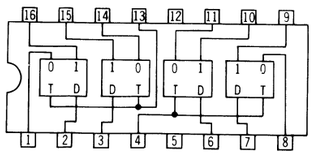
IC532(E1—4)
M74LS08P



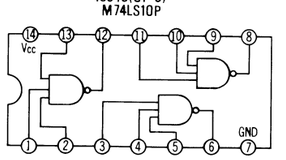
IC541(I1—2)
M74LS20P



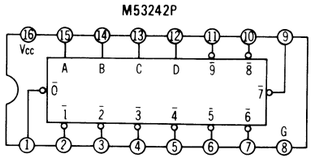
IC542
M53275P



IC543(G1—3)
M74LS10P



IC601
M53242P



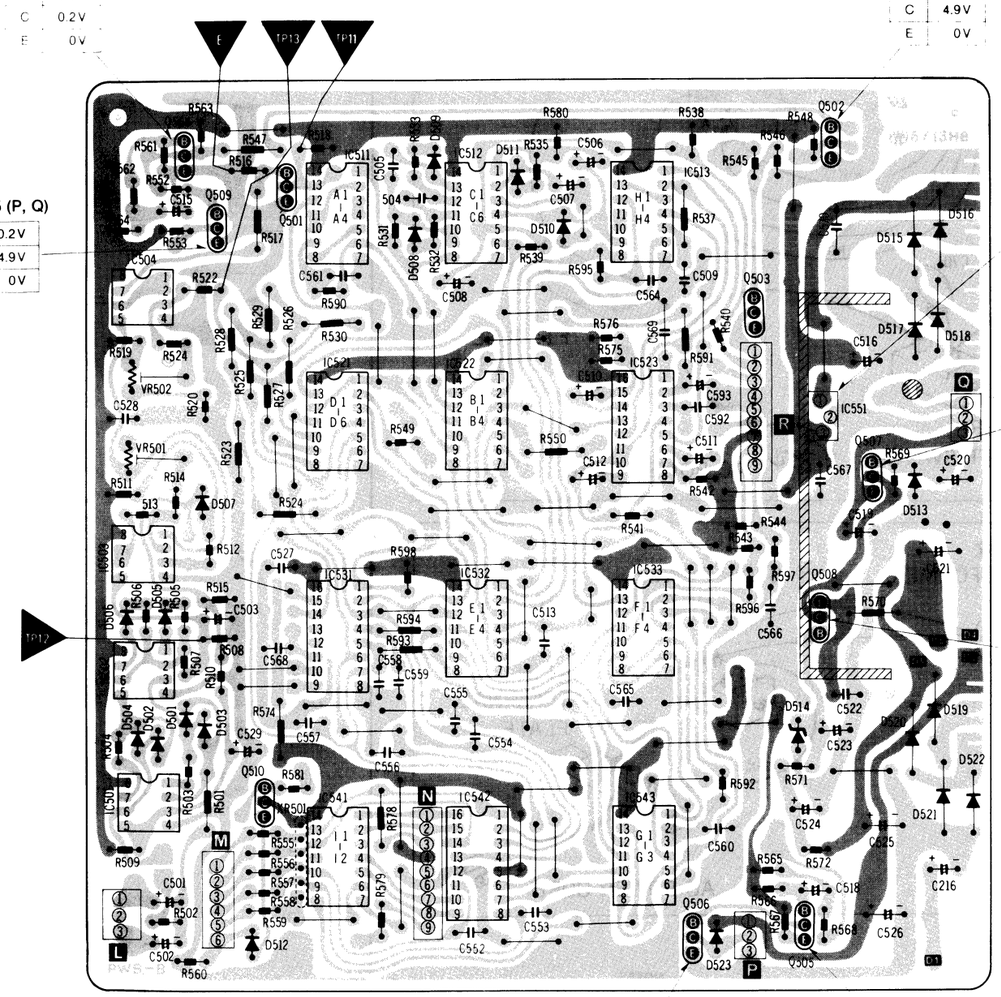
- ····· Auto-rec sensor setting switch.
- ····· Level fine adjust "down" switch.
- ····· Level fine adjust "up" switch.
- ····· Power ON/OFF switch (shown in OFF position).
- ····· AC power voltage select switch.

Latin America, Middle East and Africa areas.

- ····· FL meter adjustment VR (for −20dB indication).
- ····· FL meter adjustment VR (for 0dB indication).
- ····· Level sensor read-out indication adjustment VR (for indication number "3"/input level "−22dB").
- VR502 ····· Level sensor read-out indication adjustment VR (for indication number "15"/input level "+2dB").
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. K=1,000Ω, M=1,000kΩ.
- Capacity are in microfarads (μF) unless specified otherwise. P=Pico-farads.
- The mark (▼) shows test point. e.g. ▼=Test point 1.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position. For measurement, use VTVM.
- ⚠ indicates that only parts specified by the manufacturer used for safety.

CIRCUIT BOARDS

POWER SUPPLY AND DIGITAL VOLUME CONTROL CIRCUIT BOARD



NOTES:

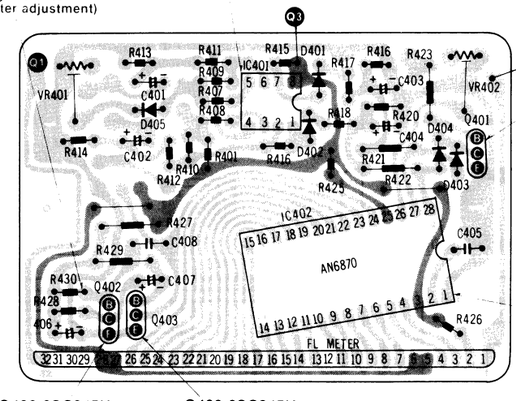
- The circuit shown in ▨ on the conductor is +B (bias) circuit.
- The circuit shown in ▨ on the conductor indicates printed circuit on the back side of the printed circuit board.
- Values indicated in ▭ are DC voltage between the ground and electrical parts.
- The voltage indicates are measured during record mode.

FL METER CIRCUIT BOARD

IC401 AN6552

1	2.1V	5	1.2V
2	1.5V	6	1.2V
3	1.2V	7	2.1V
4	0V	8	22.0V

Point Ⓘ (Refer to FL meter adjustment)



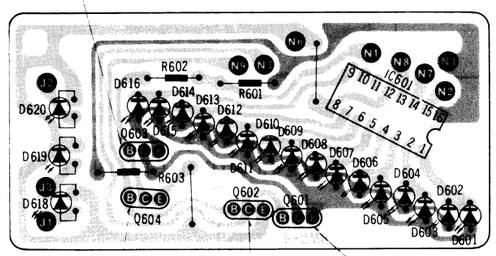
IC402 AN6870

1		0V
2		2.6V
3		22.0V
4		3.3V
5		3.3V
6	ON	20.5V
23	OFF	0.1V
24		3.4V
25		18.0V
26		0.7V
26	20dB	1.7V
27	+8dB	6.9V

DIGITAL VOLUME SCALER CIRCUIT BOARD

Q603
2SC2021 (S, R)

B	0.1V
C	2.3V
E	0.01V



Q604
2SC2021 (S, R)

B	0.05V
C	0.1V
E	0V

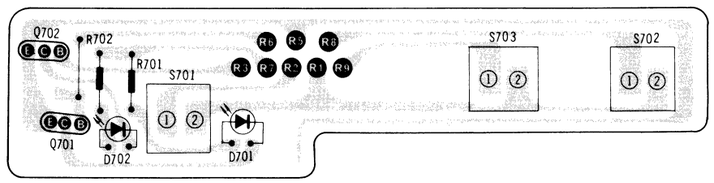
Q602
2SC2021 (S, R)

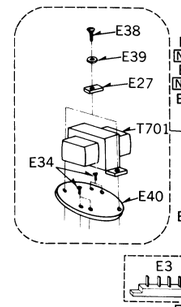
B	0.05V
C	2.9V
E	0V

Q601
2SC2021 (S, R)

B	2.9V
C	2.3V
E	2.3V

RECORDING LEVEL CONTROL CIRCUIT BOARD





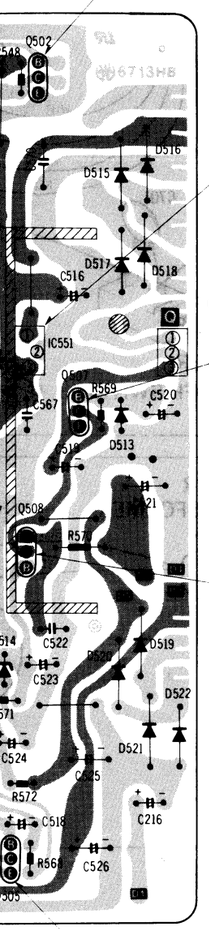
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

A B C D E F G H I J K L M N O P Q

CIRCUIT BOARD

Q502
2SC945 (P, Q)

B	0.2V
C	4.9V
E	0V



IC551 UPC78M05H

1	10.5V
2	0V
3	5.0V

Q507 2SC1847 (P, Q)

B	21.0V
C	26.0V
E	22.0V

Q508 2SC1847 (P, Q)

B	19.5V
C	26.0V
E	19.0V

Q505 2SA999 (E, F)

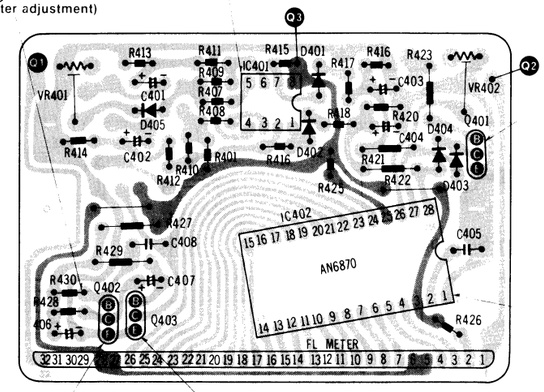
B	4.9V
C	—
E	4.9V

FL METER CIRCUIT BOARD

IC401 AN6552

1	2.1V	5	1.2V
2	1.5V	6	1.2V
3	1.2V	7	2.1V
4	0V	8	22.0V

Point Ⓤ (Refer to FL meter adjustment)



B	0.7V	(STOP REC MUT
C	—	
E	—	

IC402 AN6870

1	0V	
2	2.5V	
3	22.0V	
4	3.3V	
5	3.3V	
6	ON	28.5V
23	OFF	0.1V
24	3.4V	
25	18.0V	
26	0.7V	
28	20dB	1.7V
27	+8dB	6.9V

Q402 2SC945K

B	0.6V
C	4.0V
E	0V

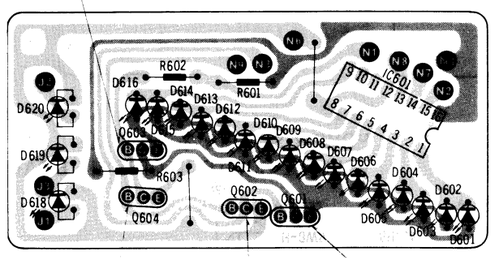
Q403 2SC945K

B	—
C	3.4V
E	0V

DIGITAL VOLUME SCALER CIRCUIT BOARD

Q603
2SC2021 (S, R)

B	0.1V
C	2.3V
E	0.01V



Q604
2SC2021 (S, R)

B	0.05V
C	0.1V
E	0V

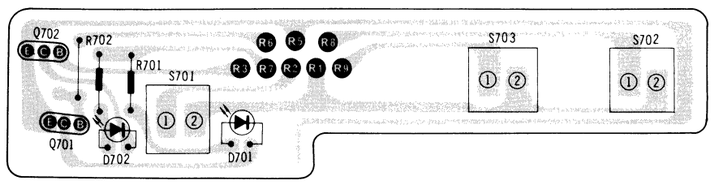
Q602
2SC2021 (S, R)

B	0.05V
C	2.9V
E	0V

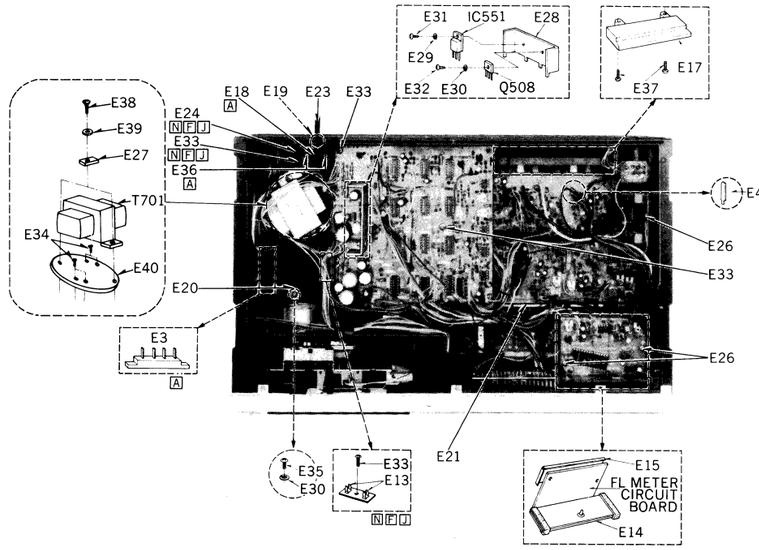
Q601
2SC2021 (S, R)

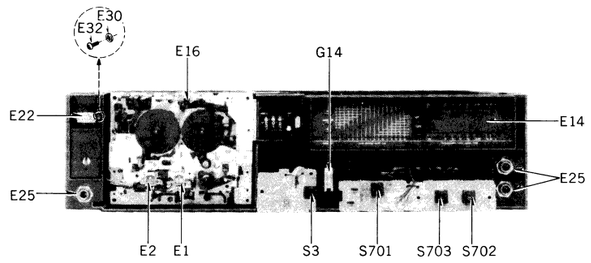
B	2.9V
C	2.3V
E	2.3V

RECORDING LEVEL CONTROL CIRCUIT BOARD



ELECTRICAL PARTS LOCATION



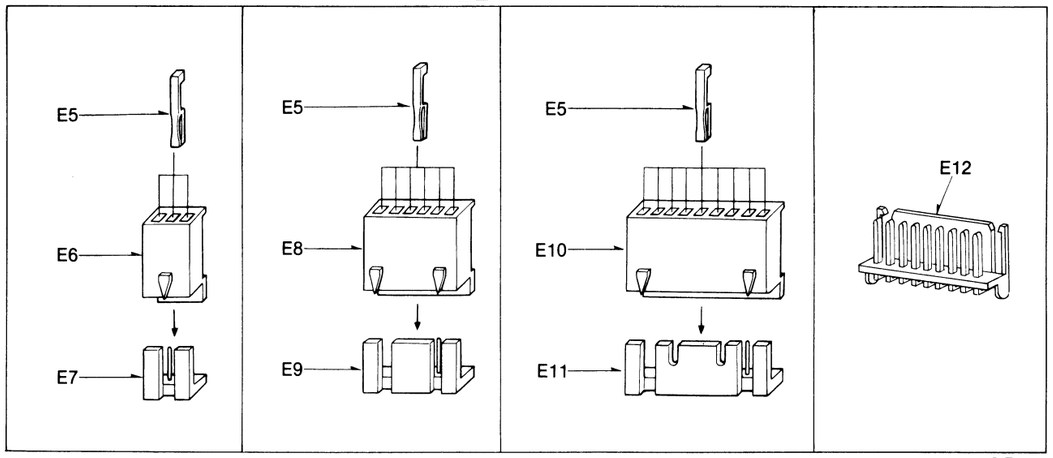


NOTE: △ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.	Part Name & Description
	ELECTRICAL PARTS	
E1	QWY4122Z	Record/Playback Head
E2	QWY2133Z	Erase Head
E3	QJT4017	4 Pin Terminal Plate
E4	QJT1067	Check Pin
E5	QJT0055	Contact
E6	QJS1921TN	3 Pin Socket
E7	QJP1921TN	3 Pin Post
E8	QJS1922TN	6 Pin Socket
E9	QJP1922TN	6 Pin Post
E10	QJS1923TN	9 Pin Socket
E11	QJP1923TN	9 Pin Post
E12	QJS1923TNL	9 Pin Post (Horizontal Type)
E13 [N][F][J] △	QTF1056	Fuse Holder
※For PX.		
※For Asia, Latin America, Middle East and Africa areas.		
E14	QSLS006RF	FL Meter
E15	QTSM0036	Shield Plate
E16	XAMQ41S500	Pilot Lamp (for Mechanism Section)
E17	QKJM0030	Jack Holding Plate
E18 [A]	QTD1164	Cord Clamper
※For Australia.		
E19 [N][F][J]	QTD1129	Cord Bushing
※For PX.		
※For Asia, Latin America, Middle East and Africa areas.		
[A]	QBJ1425	〃
※For Australia.		
E20	QMLM0039	Recording Lever
E21	QBSM0005	Recording Wire
E22	QGOM0029	Power Button
E23 [N][F][J] △	QFC1208M	AC Power Cord
※For PX.		
※For Asia, Latin America, Middle East and Africa areas.		
[A] △	QFC1208M	〃
※For Australia.		
E24 [N][F][J]	QKJM0043	Switch Holding Plate
※For PX.		
※For Asia, Latin America, Middle East and Africa areas.		
E25	QNQ1070	Nut (for Headphone/MIC Jack)
E26	XTB3+8BFZ	Tapping Screw +3×8
E27	QTTM011	Transformer Retaining Metal
E28	QTHM0008	Heat Sink
E29	XWA3B	Washer 3φ
E30	XWG3	〃
E31	XSN3+6S	Screw ⊕3×6
E32	XSN3+8S	Screw ⊕3×8
E33	XTB3+10BFZ	Screw ⊕3×10
E34	XTB4+10BFZ	Screw ⊕4×10
E35	XTN3+10B	Screw ⊕3×10
E36 [A]	XTN3+16B	Screw ⊕3×16
※For Australia.		
E37	XTB3+12BFZ	Screw ⊕3×12
E38	XSN4+8S	Screw ⊕4×8
E39	XWA4B	Washer 4φ
E40	QMAM0128	Transformer Angle

NOTES:

[N] ····· For Asia, Latin America, Middle East and Africa areas.
[A] ····· For Australia.
[F][J] ····· For PX.



RS-M51

WIRING CONNECTION DIAGRAM

※For PX.
※For Asia, Latin America, Middle East a

FL METER CIRCUIT BOARD
OUTPUT VR CIRCUIT BOARD
REMOTE CONTROL JACK CIRCUIT BOARD
LUG TERMINAL (to Mechanism chassis)
EARTH PLATE-A
EARTH PLATE-B
EQUALIZER CIRCUIT BOARD
CONDENSER (C517) CIRCUIT BOARD
RECORDING LEVEL CONTROL CIRCUIT BOARD
PILOT LAMP (to Mechanism Section)
T701: POWER TRANSFORMER
S704: POWER ON/OFF SWITCH
HEADPHONES JACK
S6: TAPE SELECT MANUAL/ AUTO SWITCH
S8: PLAYBACK MUTING SWITCH
S7: FAST WIND MUTING SWITCH
MICROPHONE JACK CIRCUIT BOARD
MAIN AMP CIRCUIT BOARD
POWER SUPPLY & DIGITAL VOLUME CONTROL CIRCUIT BOARD
S4
S5
S4, 5: AUTO TAPE SELECT SWITCH
ERASE HEAD
RECORD/PLAYBACK HEAD
REC-MUTE CIRCUIT BOARD
DIGITAL VOLUME SCALER CIRCUIT BOARD
T701: POWER TRANSFORMER
※For Australia.
MOTOR
PAUSE PLUNG

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

CONDENSER (C517)
CIRCUIT BOARD

C517

PNK

L. BLU

RECORDING LEVEL CONTROL
CIRCUIT BOARD

PILOT LAMP
(to Mechanism Section)

※For PX.
※For Asia, Latin America, Middle East and Australia.

T701: POWER
TRANSFORMER

S705: AC POWER
SELECT SWITCH

F1: FUSE
(0.3A)

C701

S704: POWER
ON/OFF SWITCH

AC POWER CORD

S6: TAPE SELECT
MANUAL/
AUTO SWITCH

HEADPHONES JACK

S8:
PLAYBACK
MUTING
SWITCH

S7: FAST WIND
MUTING SWITCH

R242

POWER SUPPLY & DIGITAL
VOLUME CONTROL CIRCUIT BOARD

T BOARD

REC-MUTE
CIRCUIT BOARD

S4

S5

S4, 5: AUTO TAPE
SELECT SWITCH

DIGITAL VOLUME SCALER
CIRCUIT BOARD

T701: POWER
TRANSFORMER

S704: POWER
ON/OFF SWITCH

4 PIN
TERMINAL
PLATE

AC POWER CORD

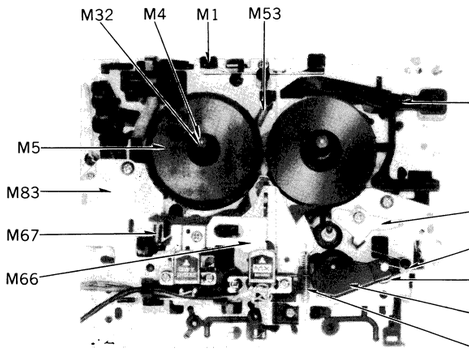
※For Australia.

MOTOR

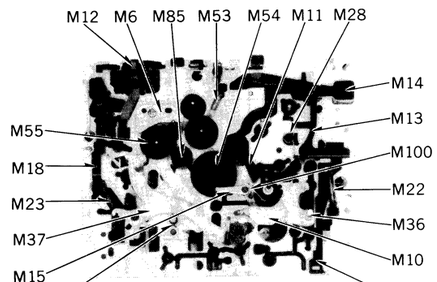
PAUSE
PLUNGER

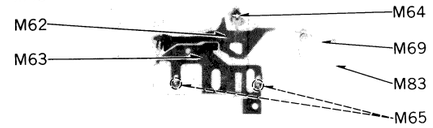
NOTES:

BLK ..... Black
BLU ..... Blue
BRN ..... Brown
GRY ..... Gray
GRN ..... Green
L. BLU ... Light Blue
NIL ..... No Color Mark
ORG ..... Orange
PNK ..... Pink
RED ..... Red
SLD ..... Shield Wire
VLT ..... Violet
WHT ..... White
YEL ..... Yellow

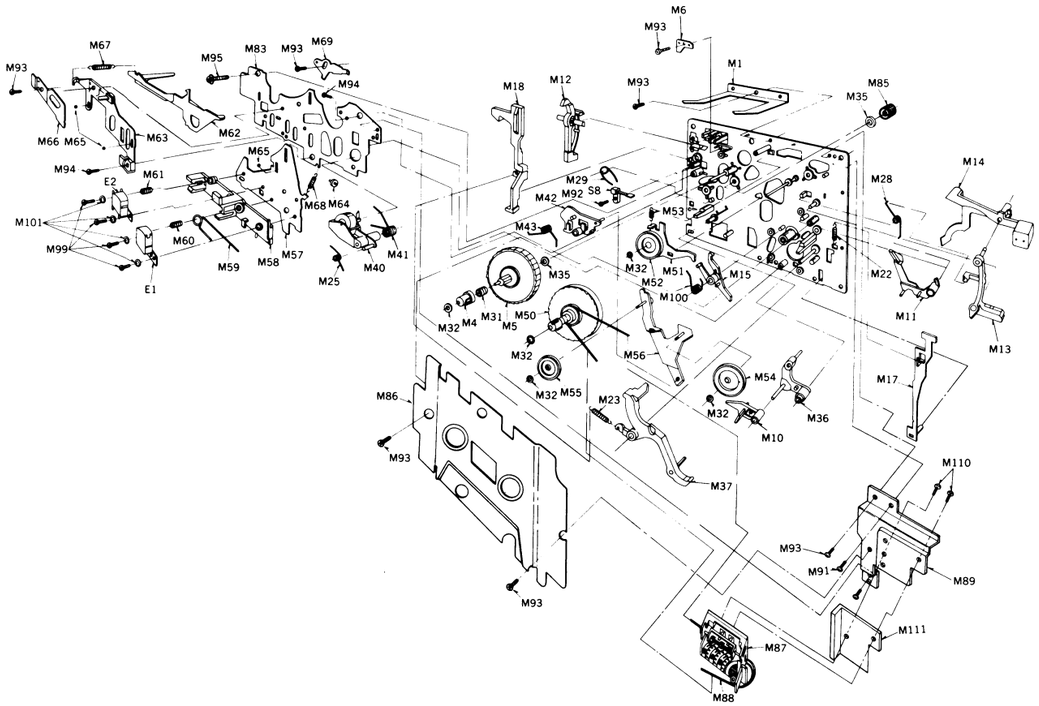


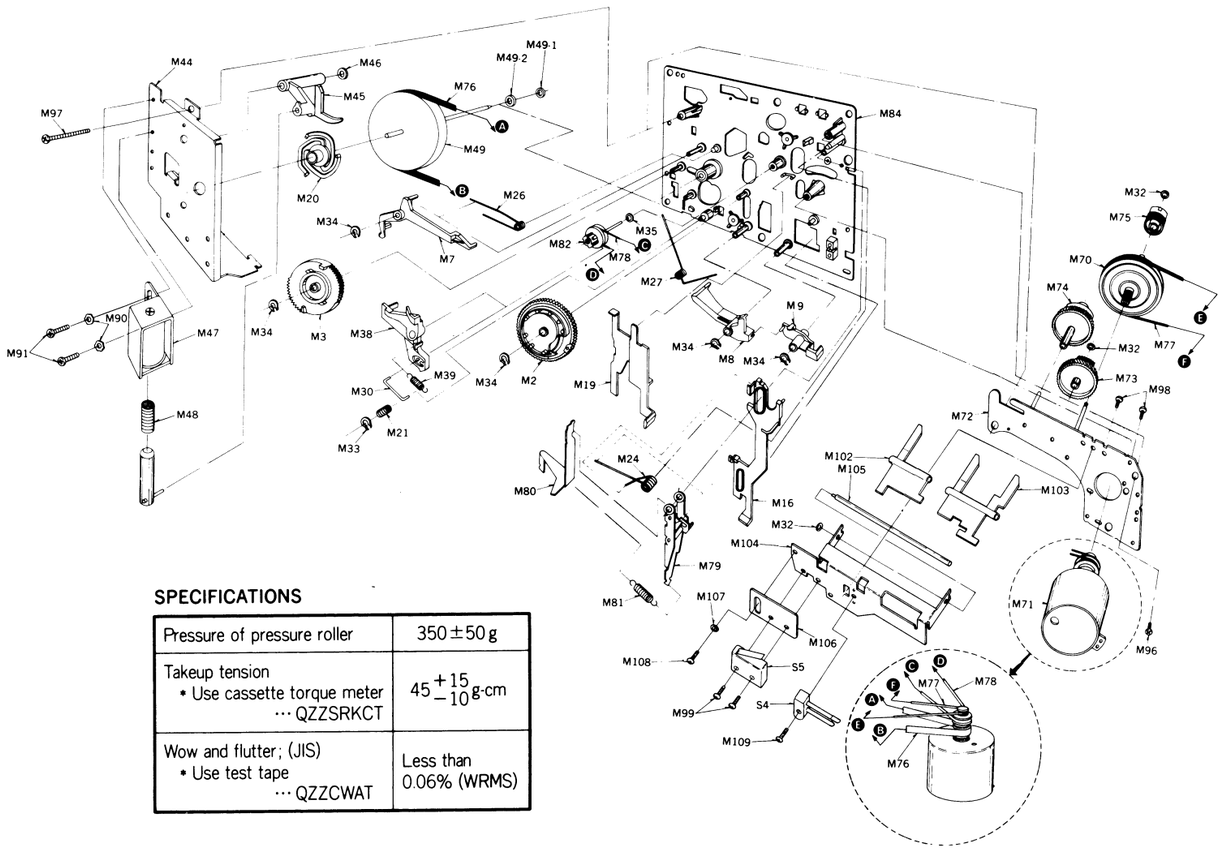
M12 M6 M85 M53 M54 M11 M28





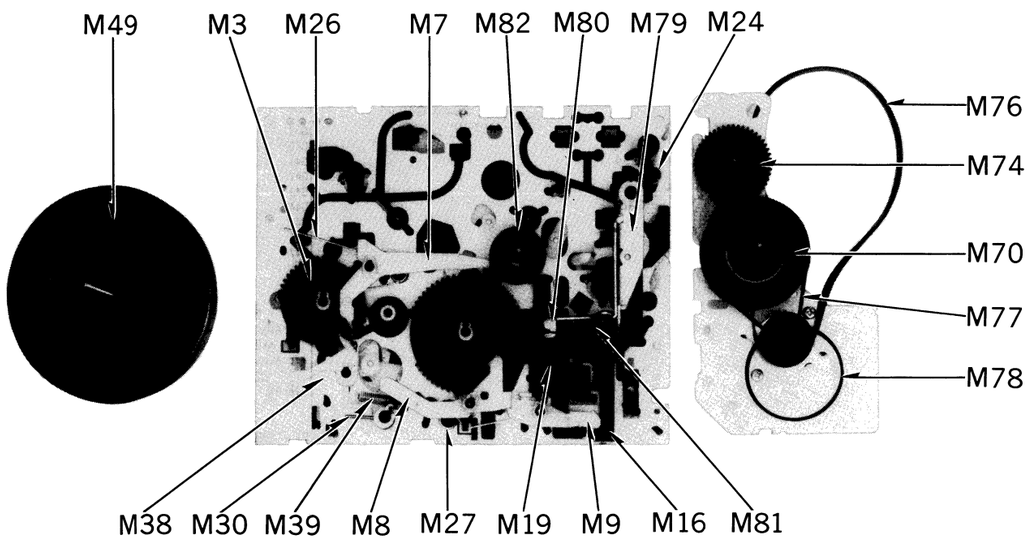
MECHANICAL PARTS LOCATION





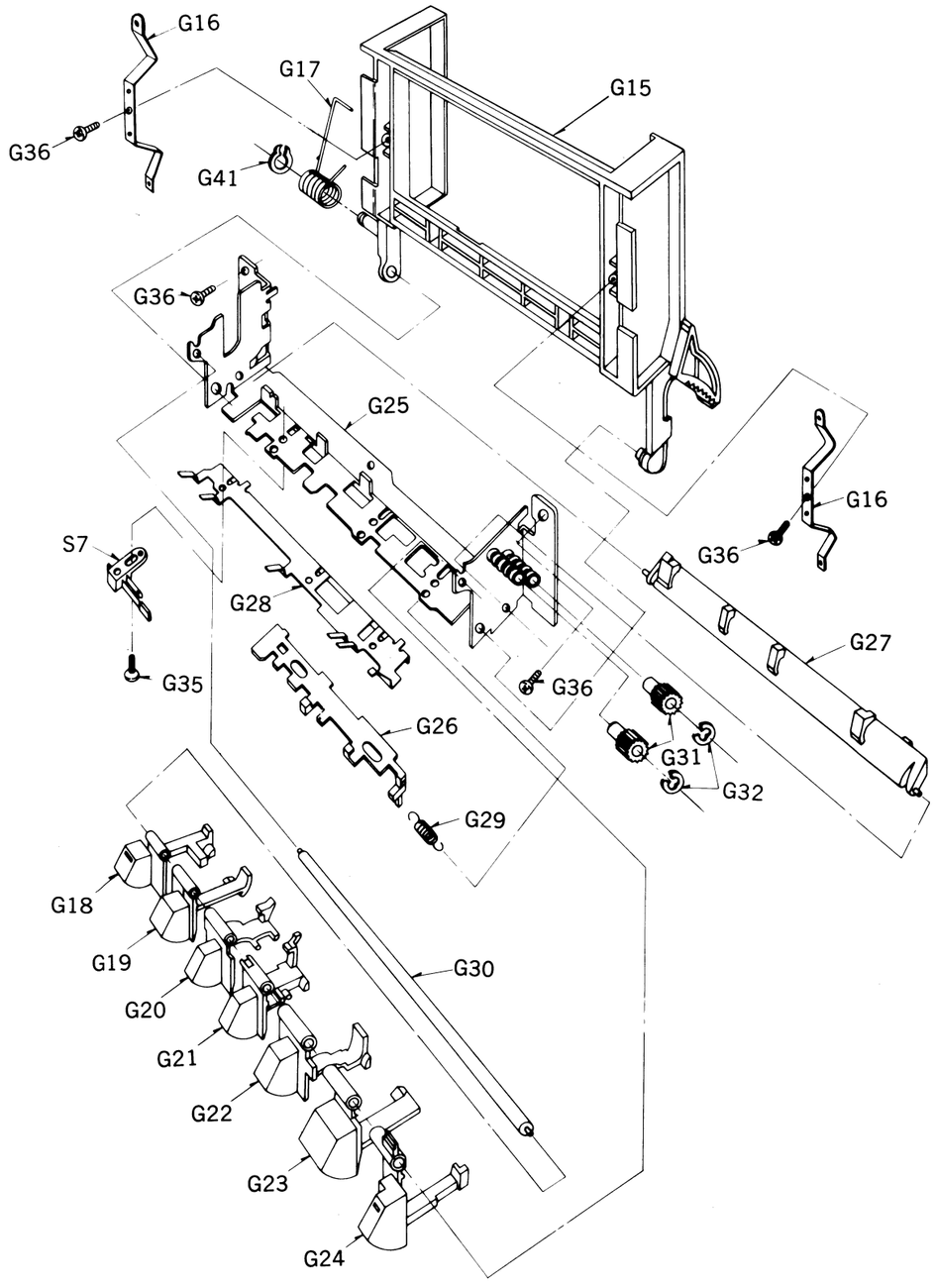
SPECIFICATIONS

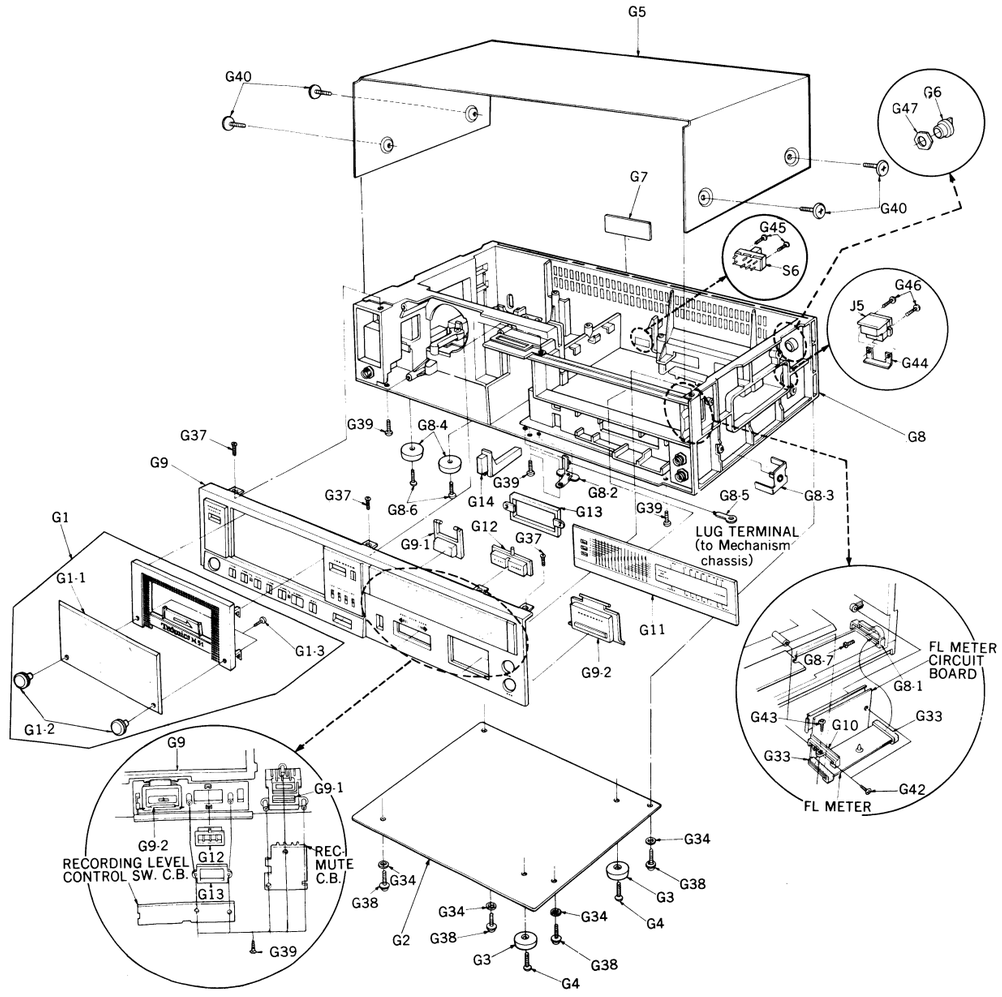
Pressure of pressure roller	350±50 g
Takeup tension • Use cassette torque meter ··· QZZSRKCT	45^{+15}_{-10} g-cm
Wow and flutter; (JIS) • Use test tape ··· QZZCWAT	Less than 0.06% (WRMS)



Ref. No.	Part No.	Part Name & Description
		MECHANICAL PARTS
M1	QBP1874	Cassette Pressure Spring
M2	QDG1201	Main Gear
M3	QDG1202	Sub Gear
M4	QMB1336	Supply Reel Table Hub
M5	QDR1139	Supply Reel Table
M6	QMF2118	Fast Forward Arm Bracket
M7	QML3581	Sub Control Lever
M8	QML3583	Main Control Lever
M9	QML3584	Record Operation Lever
M10	QML3586	Head Base Plate Lift Lever
M11	QML3494	Auto-Stop Release Arm
M12	QML3603	Erase Safety Lever
M13	QML3604	Auto-Stop Driving Lever
M14	QML3605	Auto-Stop Detection Lever
M15	QML3592	Change Lever
M16	QMR1820	Record Rod
M17	QMR1821	Auto-Stop Connection Rod
M18	QMR1822	Eject Rod
M19	QMR1824	Control Rod
M20	QMZ1239	Flywheel Thrust Retainer
M21	QBC1357	Lock Pin Pressure Spring
M22	QBT1682	Auto-Stop Connection Rod Spring
M23	QBT1894	Main Lever Spring
M24	QBN1739	Selection Lever Spring
M25	QBN1742	Pressure Roller Release Spring
M26	QBN1744	Sub Gear Spring
M27	QBN1745	Main Gear Spring
M28	QBN1746	Auto-Stop Lever Spring
M29	QBN1747	Connection Spring
M30	QBS1128	Lock Pin
M31	QBC1372	Reel Table Spring
M32	QBW2008	Poly Washer 2φ
M33	XUB4FT	Stop Ring 4φ
M34	XUB3FT	Stop Ring 3φ
M35	QBW2012	Poly Washer
M36	QXL1354	Sub Lever Assembly
M37	QXL1355	Main Lever Assembly
M38	QML3582	Pause Lock Lever
M39	QBT1896	Lever Release Spring
M40	QXL1381	Pressure Roller Assembly
M41	QBN1743	Pressure Roller Spring
M42	QML3588	Fast Forward Lever
M43	QBN1748	Fast Forward Spring
M44	QXA1042	Flywheel Retainer
M45	QML3607	Pause Driving Lever
M46	QBW2083	Snap Ring
M47	QME0157	Plunger
M48	QBC1358	Plunger Release Spring
M49	QXF0164	Flywheel Assembly
M49-1	QBW2049	Poly Washer
M49-2	QBW2026	Washer
M50	QXD1143	Takeup Reel Table Assembly
M51	QXL1382	Idler Lever Assembly
M52	QXI0111	Takeup Idler Assembly
M53	QBT1893	Takeup Idler Spring
M54	QXI0113	Fast Forward Idler Assembly
M55	QXI0112	Rewind Idler Assembly
M56	QXL1383	Fast Forward Arm Assembly
M57	QMK1840	Head Base Plate
M58	QMZ1241	Head Spacer
M59	QBN1740	Head Pressure Spring
M60	QBC1278	Head Spring (for Record/Playback Head)
M61	QBCA0008	Head Spring (for Erase Head)
M62	QML3591	Brake Arm
M63	QMZ1240	Sub Head Base Plate
M64	QMN2550	Roller
M65	QDK1017	Steel Ball 2φ
M66	QBP1873	Head Base Plate Pressure Spring
M67	QBT1597	Brake Arm Spring
M68	QBT1892	Head Release Spring
M69	QMA3858	Head Adjustment Plate
M70	QXG1047	Takeup Gear Assembly
M71	QXU0170	Motor Assembly
M72	QXK2286	Sub Chassis Assembly
M73	QDG1199	Auto-Stop Gear
M74	QDG1200	Cam Gear
M75	QDP1823	Connection Pulley
M76	QDB0281	Capstan Belt
M77	QDB0273	Fast Forward Belt
M78	QDB0274	Takeup Belt
M79	QXL1360	Record/Playback Selection Arm Assembly
M80	QML3580	Record/Playback Selection Lever
M81	QBT1895	Record/Playback Selection Lever Spring
M82	QXP0607	Fast Forward Connection Pulley Assembly
M83	QMK1838	Upper Base Plate
M84	QXK2276	Lower Base Plate
M85	QDP1828	Fast Forward Pulley
M86	QXH0341	Chassis Cover Assembly
M87	QXC0064	Tape Counter
M88	QDB0169	Counter Belt
M89	QMAM0126	Counter Angle
M90	XWC3B	Washer 3φ
M91	XSN3+6S	Screw ⏀3×6
M92	XTN2+6B	Tapping Screw ⏀2×6
M93	XTN26+6B	Tapping Screw ⏀2.6×6
M94	XTN26+10B	Tapping Screw ⏀2.6×10
M95	XTN26+12B	Tapping Screw ⏀2.6×12
M96	XTN3+10B	Tapping Screw ⏀3×10
M97	XTN3+24B	Tapping Screw ⏀3×24
M98	XSN26+3S	Screw ⏀2.6×3
M99	XSN2+10	Screw ⏀2×10
M100	QBN1741	Change Lever Spring
M101	XWA2	Washer 2φ
M102	QML3644	Tape Detection Lever-A (for Metal Tape)
M103	QML3645	Tape Detection Lever-B (for CrO_2 Tape)
M104	QMA3920	Detection Lever Angle
M105	QMS2546	Detection Lever Shaft
M106	QMF1682	Switch Retaining Plate
M107	XWC26B	Washer 2.6φ
M108	XSN26+6	Screw ⏀2.6×6
M109	XSN2+6	Screw ⏀2×6
M110	XSN3+10S	Screw ⏀3×10
M111	QKJM0042	Spacer (for Counter)

CABINET PARTS





Ref. No.	Part No.	Part Name & Description
		CABINET PARTS
G1	QYFM0045	Cassette Lid Assembly
G1-1	QGKM0130	Cassette Lid
G1-2	QNQ1088	Nut
G1-3	XSN26+6BV	Screw ⊕2.6×6
G2	QGCM0033	Bottom Cover
G3	QKA1050	Rubber Foot
G4	XTN3+10BFZ	Tapping Screw ⊕3×10
G5	QGCM0032	Case Cover
G6	QGT1506K	Output Volume Knob
G7 [N]	QGSM0116	Main Name Plate
※For Asia, Latin America, Middle East and Africa areas.		
[A]	QGSM0123	〃
※For Australia.		
[FJ]	QGSM0124	〃
※For PX.		
G8 [NAFJ]	QYMM0067K	Main Case Assembly
※For PX.		
※For Asia, Latin America, Middle East and Africa areas.		
[A]	QYMM0068K	〃
※For Australia.		
G8-1	QKJM0041	Meter Holder-B
G8-2	QTSM0034	Earth Plate-A
G8-3	QTSM0035	Earth Plate-B
G8-4	QKA1050	Case Foot
G8-5	QTD1001	Lug Terminal
G8-6	XTN3+10B	Tapping Screw ⊕3×10
G8-7	XTB3+12BFZ	Tapping Screw ⊕3×12
G9	QYPM0040	Front Panel Assembly
G9-1	QGOM0025	Rec-Mute Button
G9-2	QXB0703	Auto-Rec Sensor Button
G10	QKJM0040	Meter Holder-A
G11	QGKM0126	Meter Ornament
G12	QGOM0027	Level Fine Adjust Button
G13	QKJM0037	Button Holder
G14	QGOM0026	Dolby Button
G15	QKFM6005K	Cassette Holder
G16	QBP1900	Holder Spring
G17	QBN7008	Eject Spring
G18	QXL1363	Eject Button Assembly
G19	QXL1364	Record Button Assembly
G20	QXL1365	Rewind/Review Button Assembly
G21	QXL1366	Fast Forward/Cue Button Assembly
G22	QXL1367	Playback Button Assembly
G23	QXL1368	Stop Button Assembly
G24	QXL1369	Pause Button Assembly
G25	QXA1044	Operation Button Angle Assembly
G26	QMR1823	Obstruction Rod
G27	QML3593	Lock Arm
G28	QBP1875	Operation Lever Spring
G29	QBT1597	Obstruction Rod Spring
G30	QMN2554	Operation Lever Shaft
G31	QDG1102	Holder Gear
G32	XUC4FT	Stop Ring 4ϕ
G33	QBMM0018	Meter Cushion
G34	XWG3	Washer 3ϕ
G35	XTN2+6B	Tapping Screw ⊕2×6
G36	XTN26+6B	Tapping Screw ⊕2.6×6
G37	XTS3+10B	Tapping Screw ⊕3×10
G38	XTN3+10B	〃
G39	XTB3+10BFZ	〃
G40	XTB4+10BFN	〃
G41	XUB5FT	Stop Ring 5ϕ
G42	XTB3+8BFZ	Tapping Screw ⊕3×8
G43	XTB3+12BFZ	Tapping Screw ⊕3×12
G44	QMA3872	Switch Angle
G45	XSN26+5FZ	Screw ⊕2.6×5
G46	XSN3+10FZS	Screw ⊕3×10
G47	XNS7	Nut (for Output Volume)
		ACCESSORIES
A1	RP023A	Connection Cord
A2 [N]	QQT2861	Instruction Book
※For Asia, Latin America, Middle East and Africa areas.		
[A]	QQT2829	〃
※For Australia.		
[FJ]	QQT2863	Instruction Book
※For PX.		
		PACKINGS
P1 [NA]	QPNM0153	Inside Carton
※For Asia, Latin America, Middle East, Africa areas and Australia.		
[FJ]	QPNM0152	〃
※For PX.		
P2	QPAM0038	Cushion-R
P3	QPAM0039	Cushion-L
P4	XZB50X65A02	Poly Bag
P5	QPG1985	Pad

MNE H.M NAFJ Printed in Japan